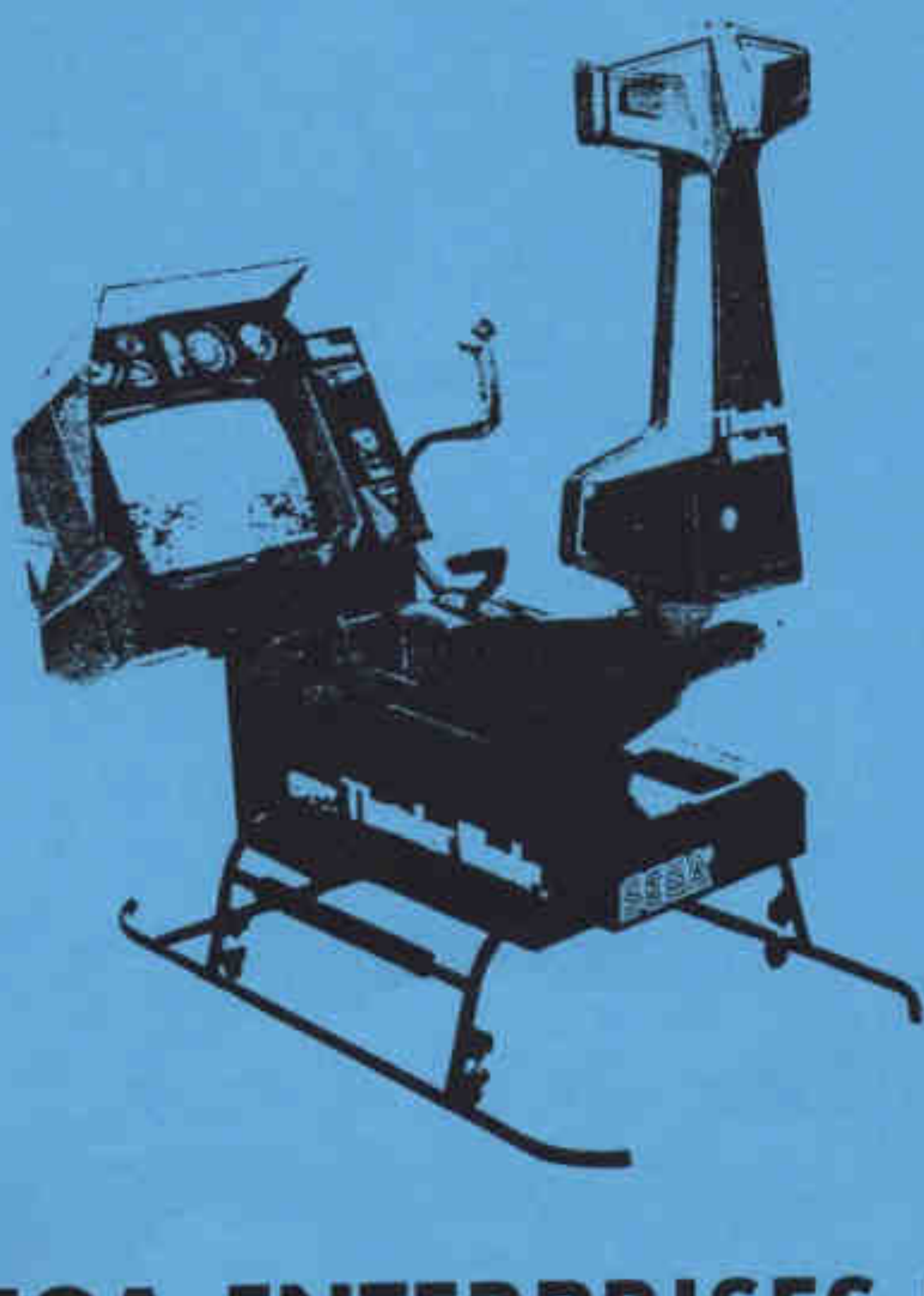
1ST-PRINTING-DC

SEGA®

Thunder Blade

DELUXE TYPE

OWNER'S MANUAL



SEGA ENTERPRISES, LTD.

MANUAL NO. 420-5861-01

TABLE OF CONTENTS

SPECIFICATIONS

INSTALLATION SPACE	: 1700mm (66.9in.) (D) × 900mm (35.4in.) (W)
HEIGHT	: 1680mm (66.1in.)
POWER	: 170W
C. R. T.	: 20INCH
WEIGHT	: 140kg (309lbs.)

NOTE

○ Descriptions herein contained may be subject to improvement changes without notice.

INTRODUCTION OF THE OWNER'S MANUAL

SEGA ENTERPRISES, LTD., supported by its high electronic technology of LSIs, microprocessors, etc. and a wealth of experience, has for more than 30 years been supplying various innovative and popular game machines to the world market. This OWNER'S manual is intended to provide detailed comments together with all the necessary information covering the operation in general of electronic assemblies, electromechanicals servicing control, spare parts, etc. as regards the THUNDER BLADE a new SEGA product. The manual is intended for those who have knowledge of electricity and technical expertise especially in ICs, CRTs, microprocessors, etc. Carefully read so as to acquire sufficient knowledge before working on the machine. Should there be a malfunction, non-technical personnel should under no circumstance touch the interior system.

1. HANDLING PRECAUTIONS

When installing or inspecting, be very careful of the following points and pay attention to ensure that the player can enjoy the game safely.

- Be sure to turn the power off before working on the machine.
- To insert or pull out the plug quickly is dangerous.
- It is necessary to make sure that the power cord or the grounding wire is not exposed on the road, etc. in a manner so as to be dangerous. Make sure that grounding connections are made safely at the position where so specified.
- Do not use any fuse that does not meet the specified rating.
- Make complete connections for the IC board and other connecters. Insufficient insertion is very dangerous.

Also, for the IC board circuit inspections, only the logic tone is allowed. The use of a tester is not permitted, so be careful in this regard. After confirming that there are no irregularities, turn the power ON.

2. PREVENTION OF COUNTERFEITING AND CONVERSION

LABELLING

To prevent counterfeits and conversions, the following labels are put on all the SEGA products. When handling such goods, be sure to confirm the labels. They are used to prevent illegal acts such as the unauthorized copying of the products and the printed circuit boards thereof or carrying on business by manufacturing similar merchandise or by converting, selling or using such products or printed circuit boards.

ORIGINAL SEAL

The following seal is put on the machines manufactured by SEGA.

LICENSE SEAL

The following seal is put on the kits, such as the printed circuit boards, of SEGA products.





COPYRIGHT NOTICE

This SEGA product has the copyright notice as follows:

© SEGA 1987

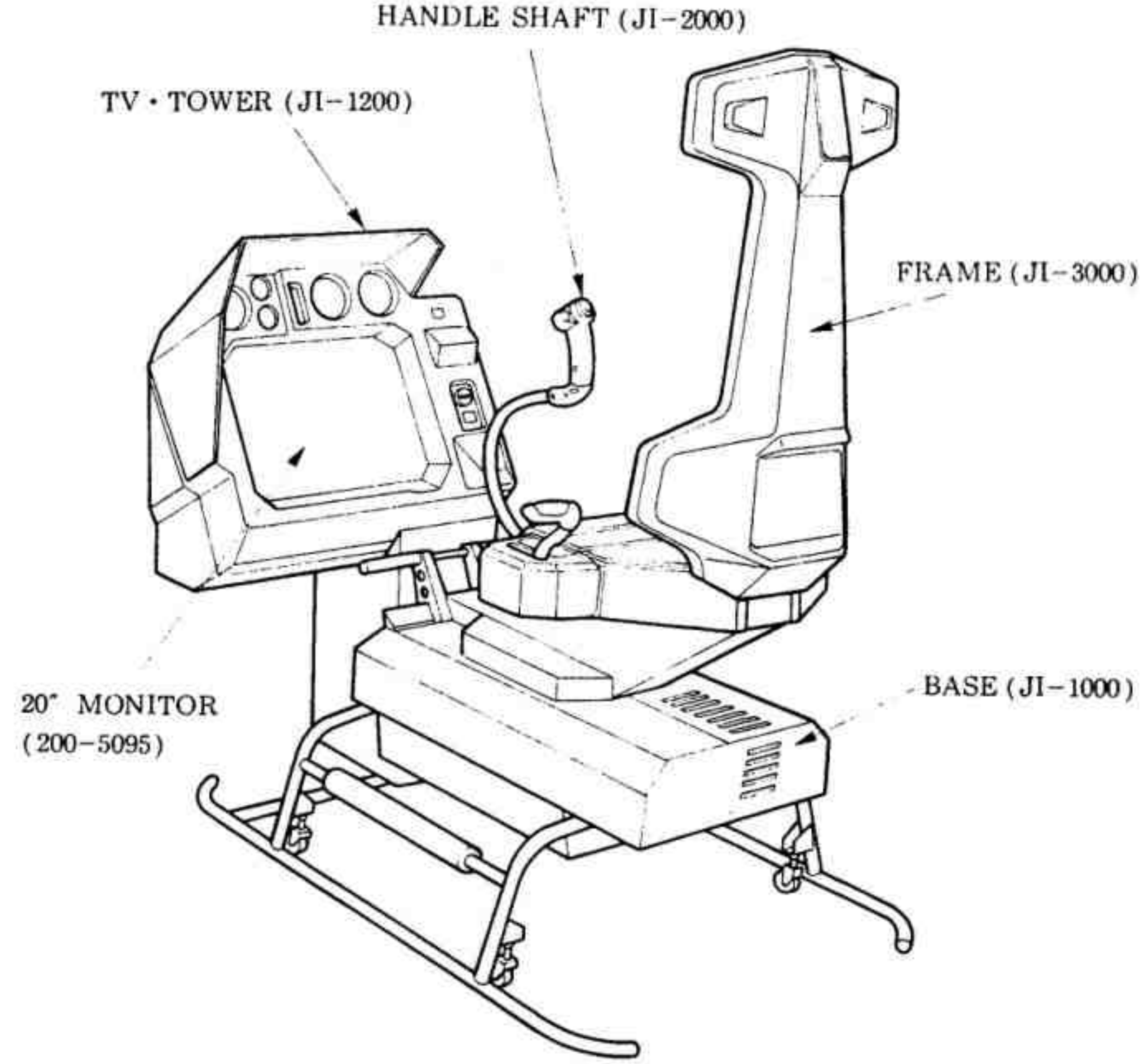
This signifies that this work was disclosed in 1987 and is the property of SEGA ENTERPRISES, LTD.

3. PRECAUTIONS CONCERNING THE PLACE OF INSTALLATION

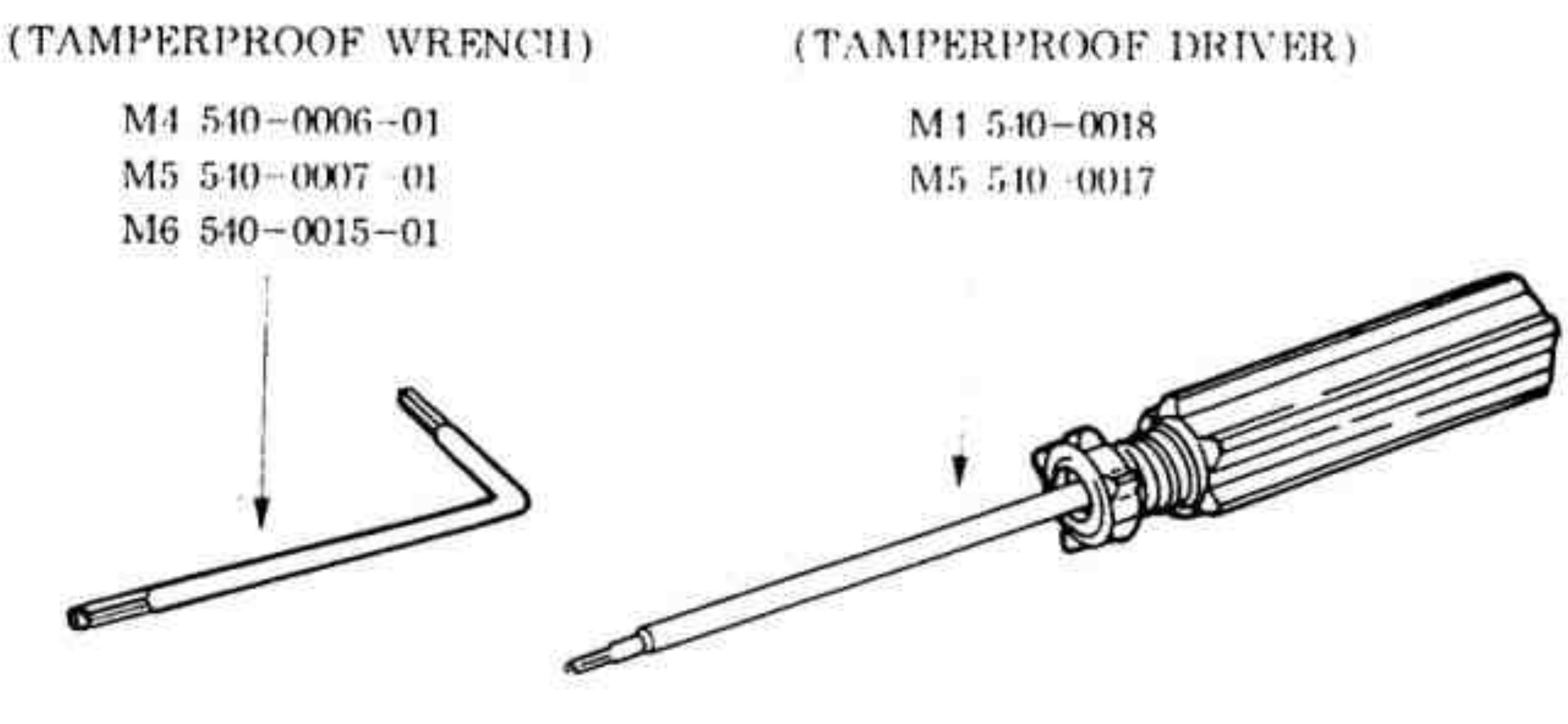
The THUNDER BLADE is an indoor game machine. Absolutely do not install it outside. Even indoors, avoid installing in places mentioned below so as to ensure proper usage:

- o Places subject to rain or water leakage, or condensation due to humidity.
- o In the proximity of an indoor swimming pool and/or shower.
- o Places subject to direct sunlight.
- o Places subject to heat sources from heating units, etc., or hot air.
- o Vicinity of highly inflammable/volatile chemicals or hazardous matter.
- o Sloped surfaces.
- o Vicinity of anti-disaster facilities such us fire exits and fire extinguishers.
- o Places subject to any type of violent impact.
- o Dusty places.

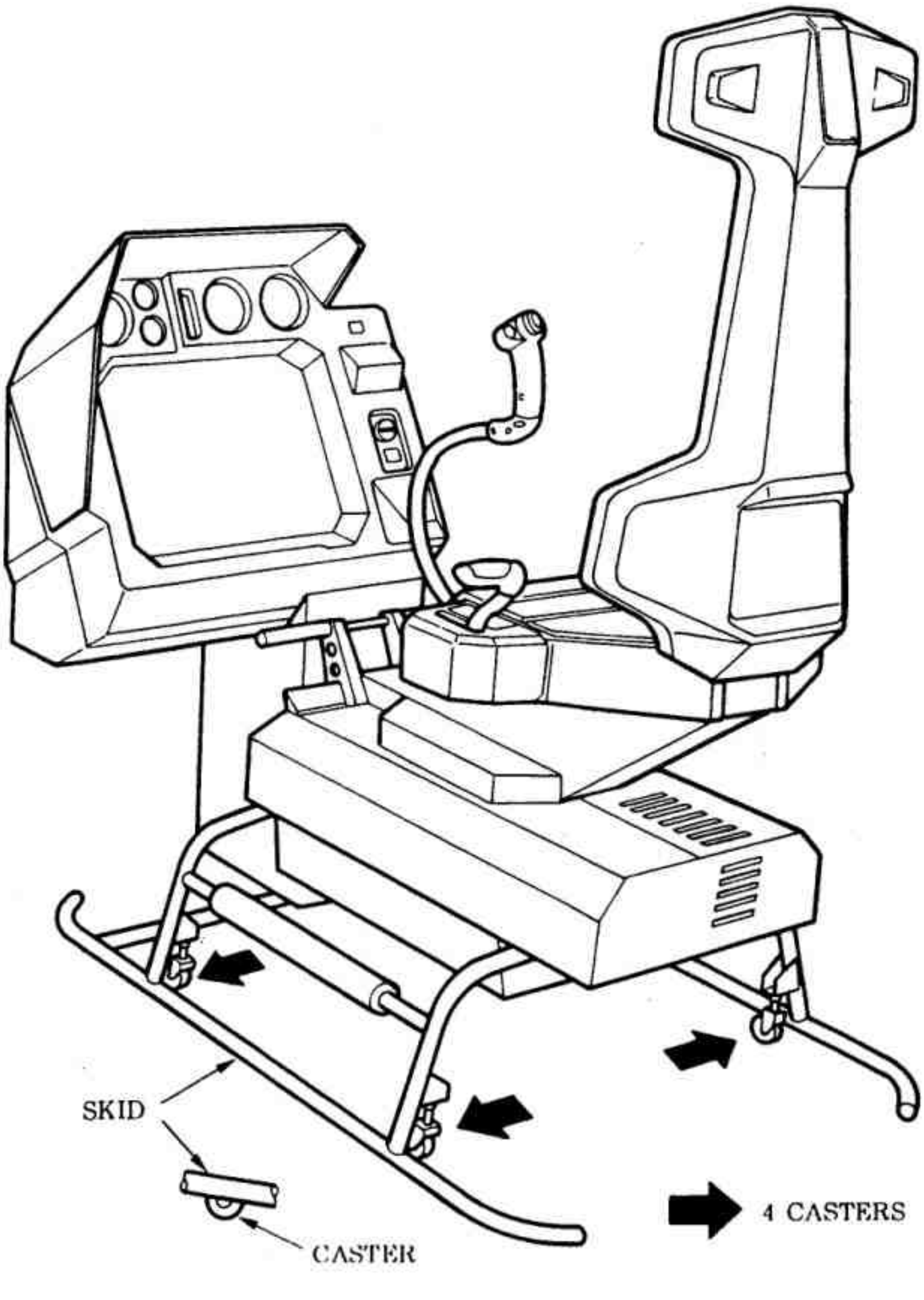
4. NAME OF PARTS



TOOLS



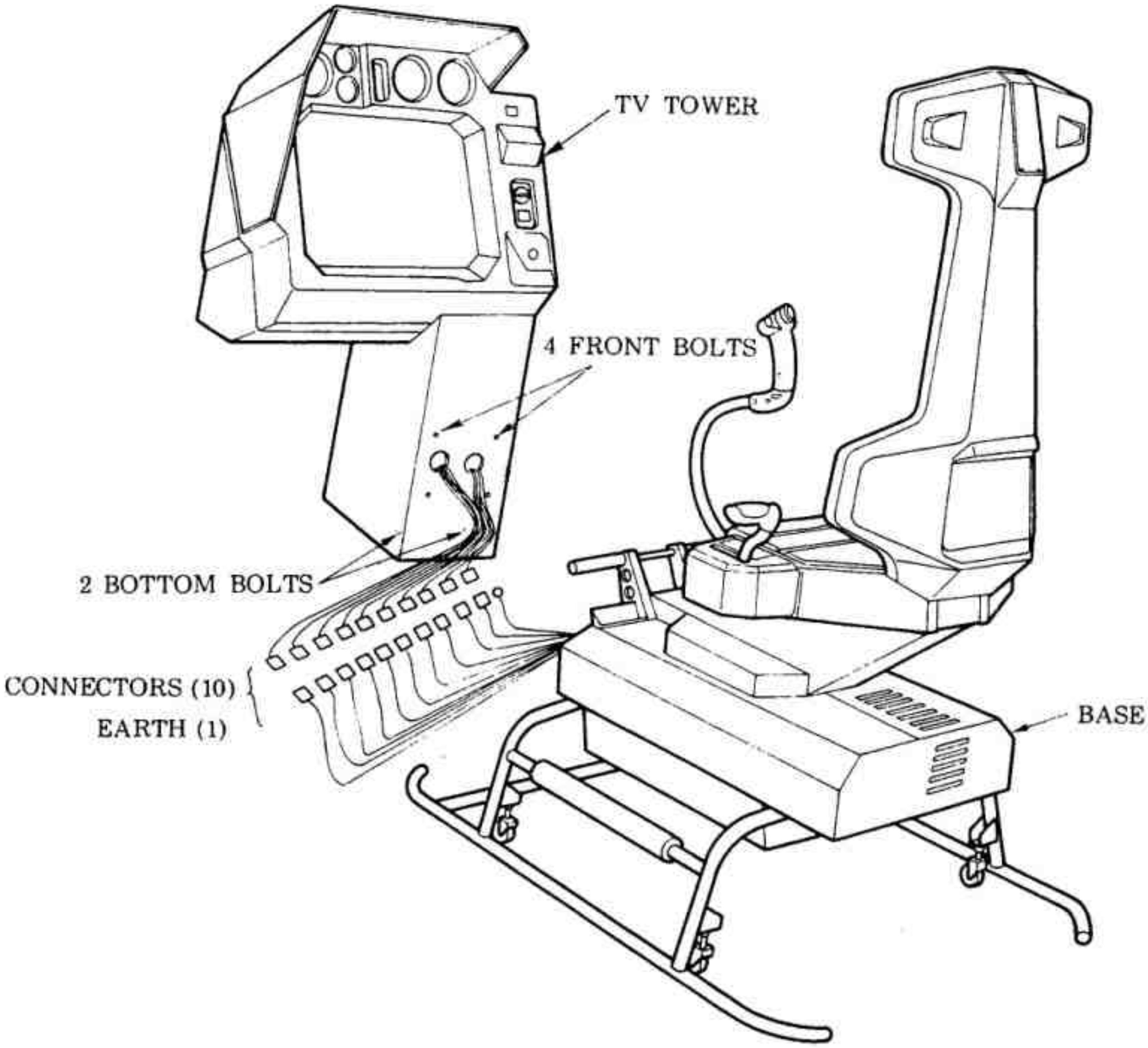
5. INSTALLATION PRECAUTIONS



MOVING THE MACHINE

- When moving the machine, which weighs approximately 309 lbs (140kg) make sure that the casters protrude below the skids so that the unit can be easily changed from one place to another.

6. DISASSEMBLING & REASSEMBLING



1) Take off the 6 (M8×30) bolts which fasten the TV TOWER and BASE.

2) Slightly detach the BASE from the TV TOWER, and then remove the 10 connectors and the earth terminal.

   (Note) The earth terminal is attached to the upper door of the 2−door coin chute.

3) After finishin the above, the base and the TV tower can be detached.

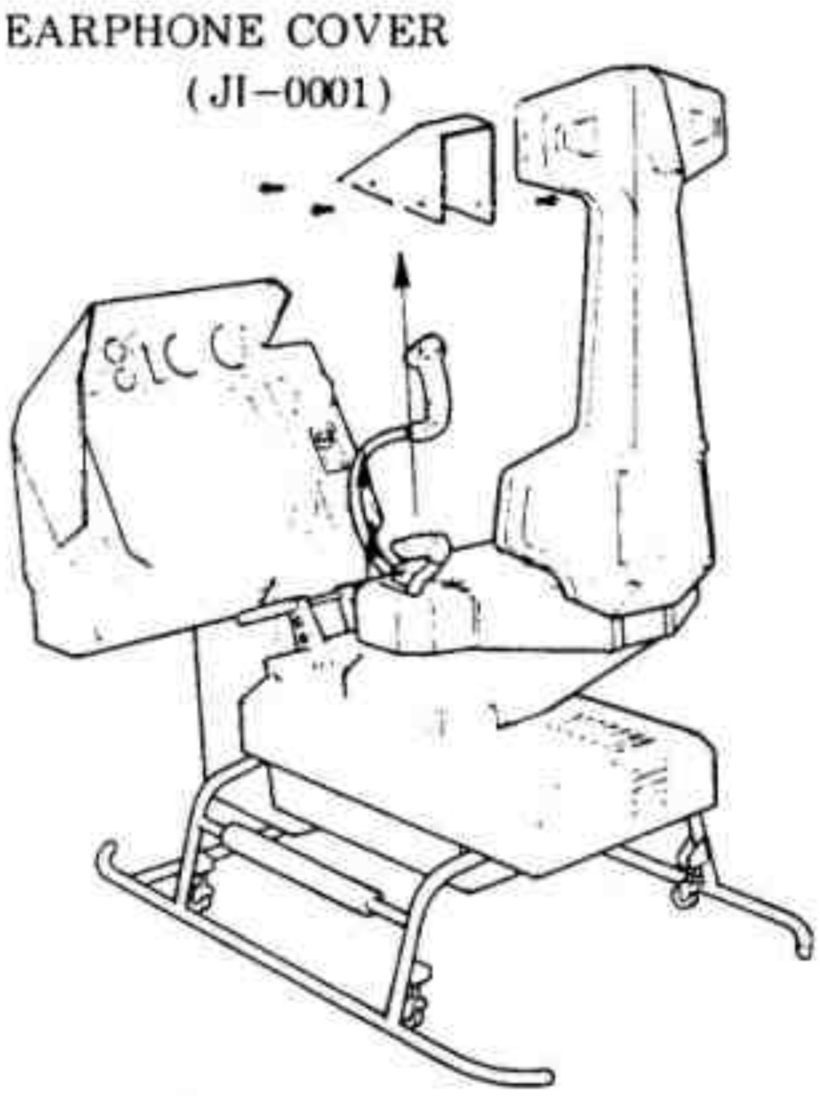
7. VR ADJUSTMENT WITH THE MAIN FRAME STATIONARY

Display the following screen in the self-test mode.

```
DIAGNOSTIC
      INPUT  TEST

COIN  CHUTE  1
COIN  CHUTE  2
SERVICE  SW
MISSILE
CANNON

LEVER  UP  DOWN          80H
LEVER  LEFT  RIGHT       80H
SLOTTLE                  80H
```

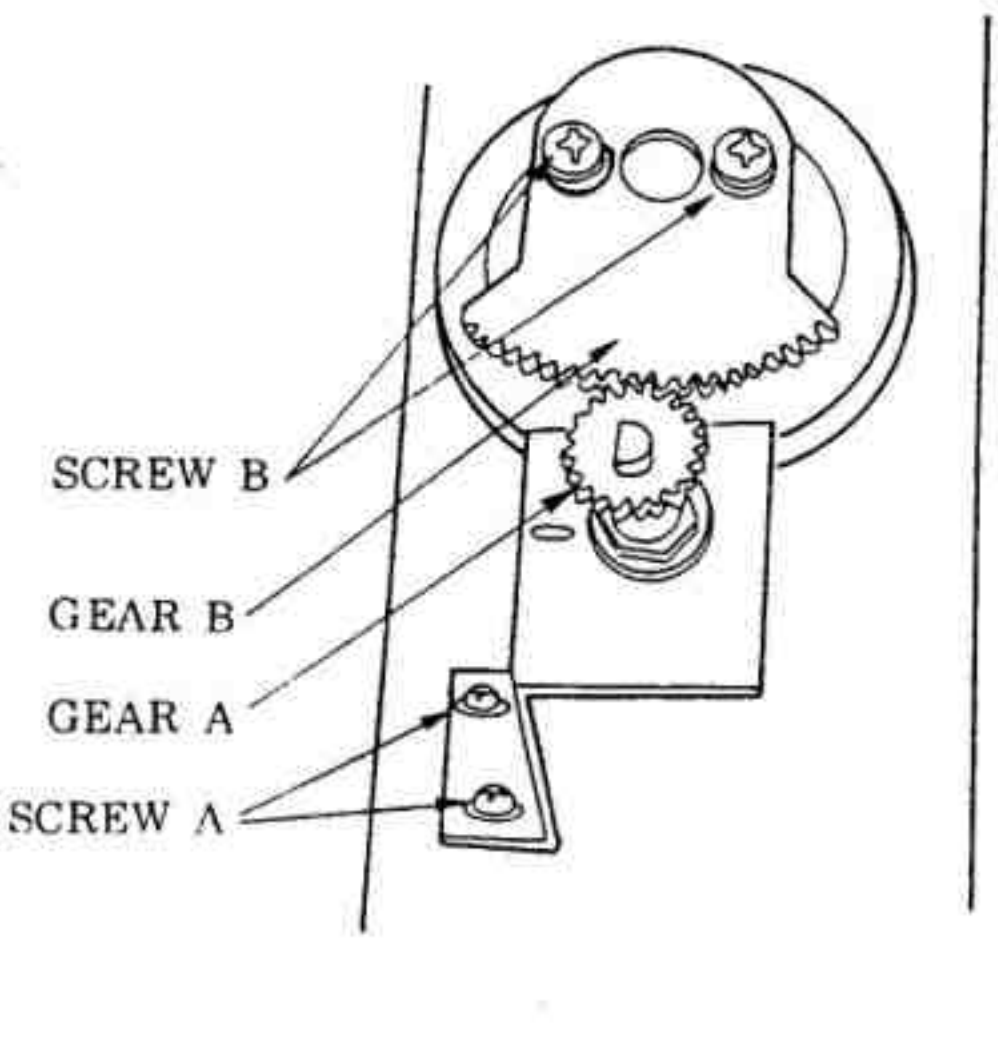


Fasten the set screws when the on-screen variable value in the test mode becomes 80H (± 5).

① **Take off the earphone cover (JI-0001) from the frame.**

② **With the frame in an after centering status; loosen screws A, manually turn gear A in a manner so that the value becomes 80H, and then fasten screw A after making backlash adjustments for gear A and B.**

③ **When the value deviates from 80H, loosen screw B and make adjustments (± 5H) by turning gear B.**



⇩

7BH, 7CH, 7DH, 7EH, 7FH, [80H], 81H, 82H, 83H, 84H, 85H

④ **Volume value setting C0H over (LEFT), 40H under CRIGHT.**

8. VR ADJUSTMENT

– Forward and backward directions –

① Take off base covr (JI–1005).

② Make sure that the handle shaft is in the neutral position.

③ Insert the screwdriver from the base fram's hole (for inserting tool) and loosen screw A, manually turn gear A in a manner so that the value becomes 80H, and then after making backlash adjustments for gear A and B, fasten A.

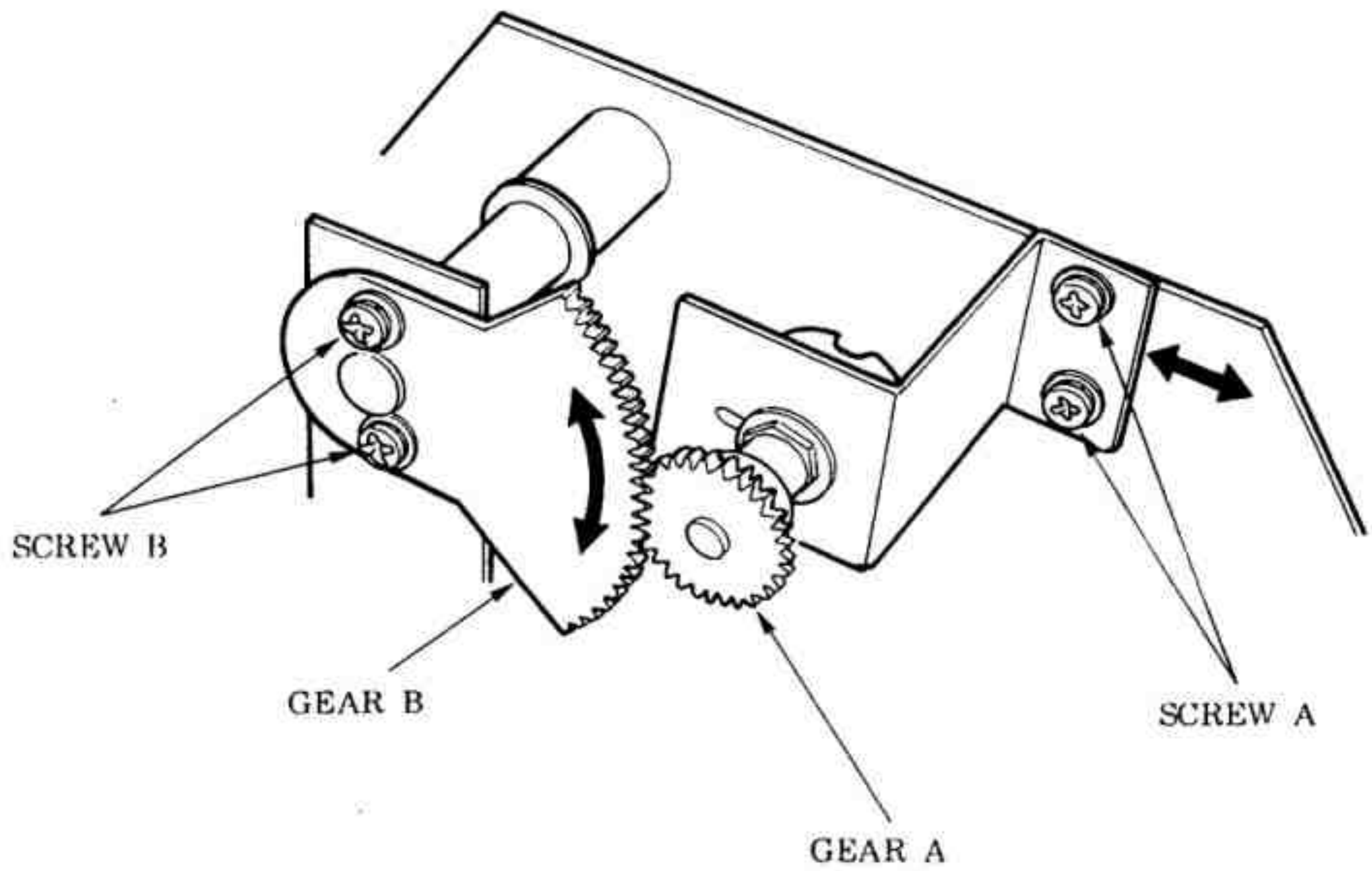
④ When the value deviates from 80H, loosen screw B and make adjustment (± 5H) by turning gear B.

⇩

7BH, 7CH, 7DH, 7EH, 7FH, **[80H,]** 81H, 82H, 83H, 84H, 85H

⑤ Volume value setting

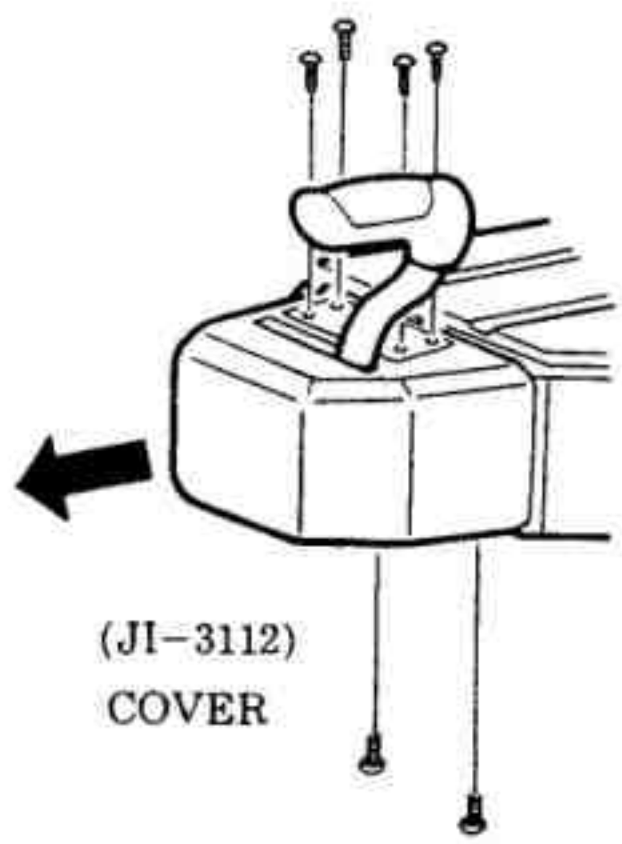
E0H over (UP), 20H under (DOWN)

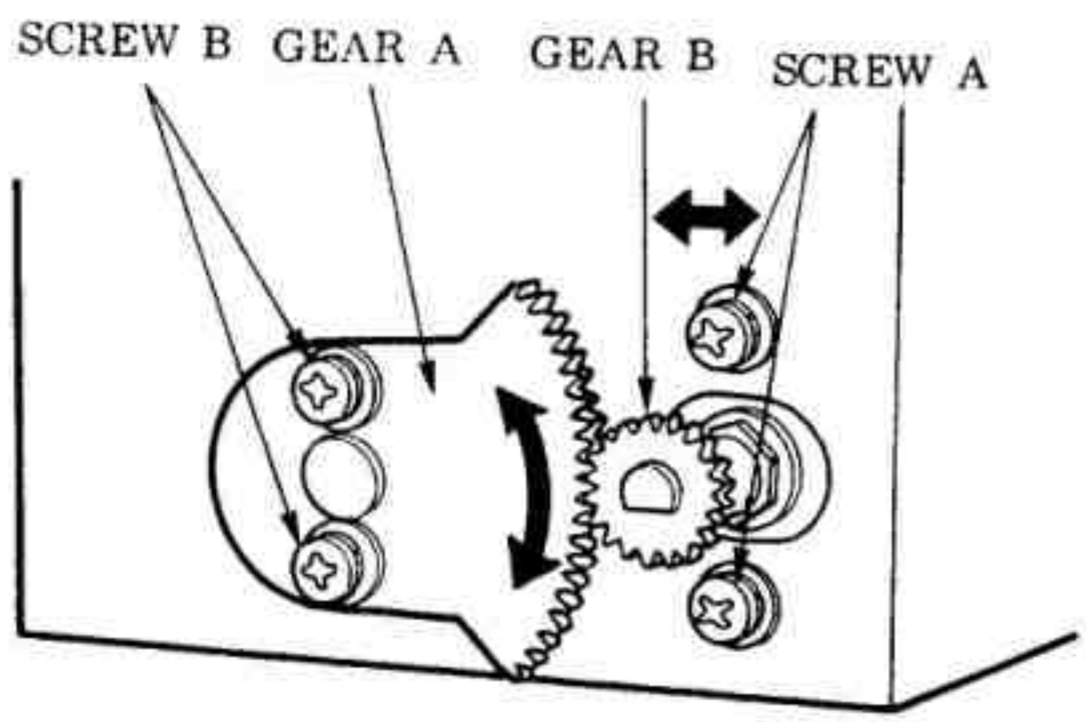


9. THROTTLE ADJUSTMENT

Procedure

1. Display "INPUT TEST" in the test mode on the monitor's screen.
2. By using the M4 temperprrof screwdriver, take off the 6 tamperproof screws (4 upper, 2 lower) and remove COVER (JI−3112).





3. With the throttle lever put in the neutral position ; loosen screw A, manually turn gear A, make sure that the variable value becomes 80H, make backlash adjustments for gear A and B, and then fasten screw A.
4. When the value deviates from 80H, make fine adjustments (± 5H) by loosening screw B and turning gear B.

   7BH, 7CH, 7DH, 7EH, 7FH, **80H,** 81H, 82H, 83H, 84H, 85H

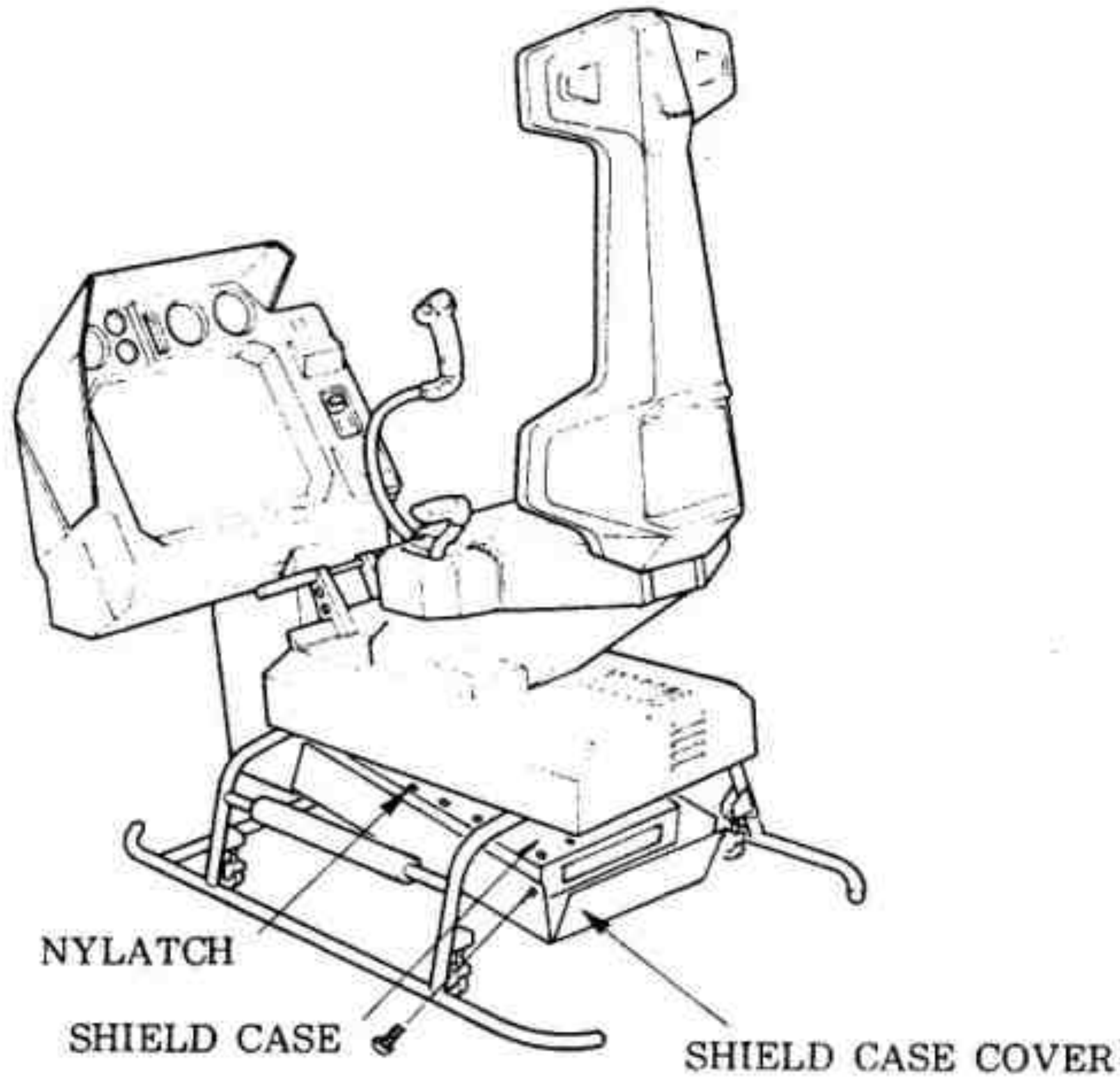
5. Volume value setting

   C0H over (FAST), 40H under (SLOW).

10. IC BOARD

① IC Board maintenance

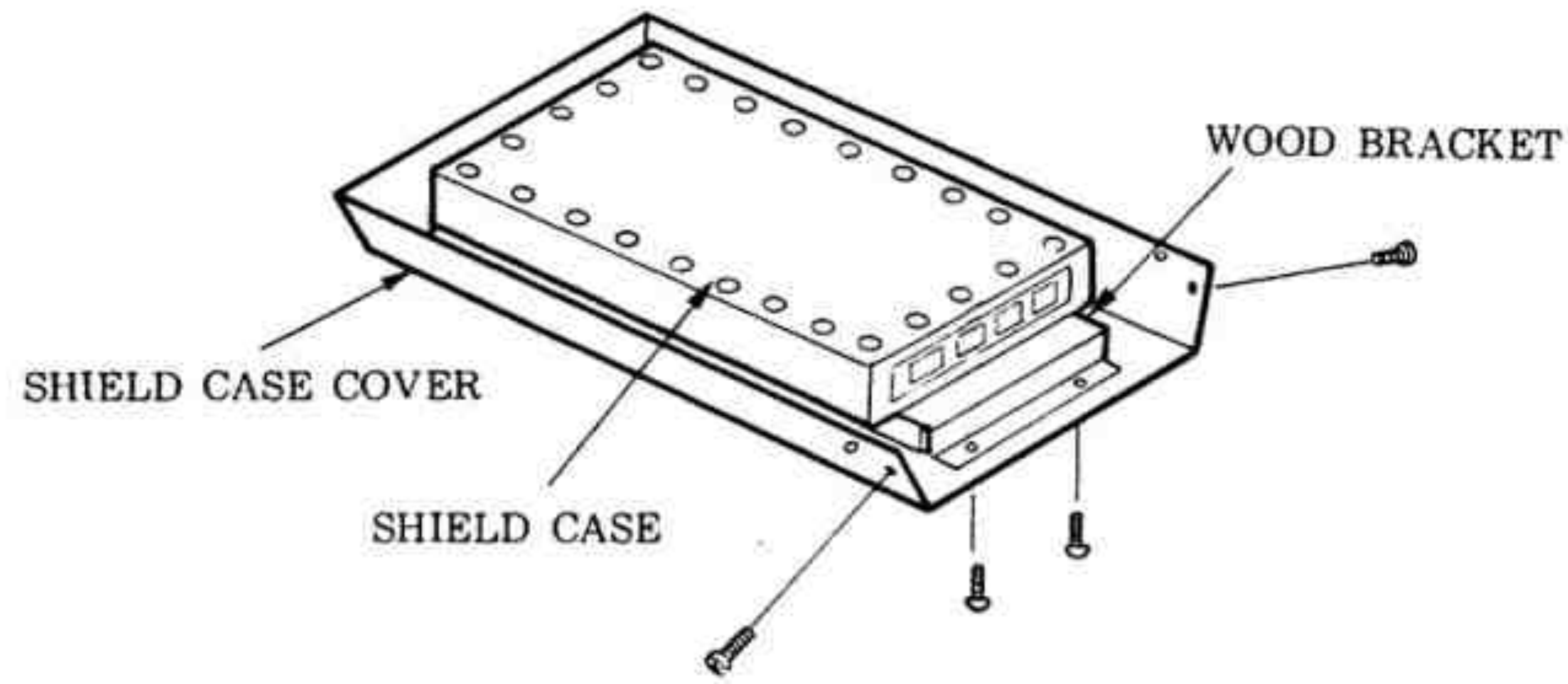
When performing the IC Board maintenance, open base's underside shield case cover (JI–0003), and then open the shield case by pulling its NYLATCH knob.



② Removing the shield case

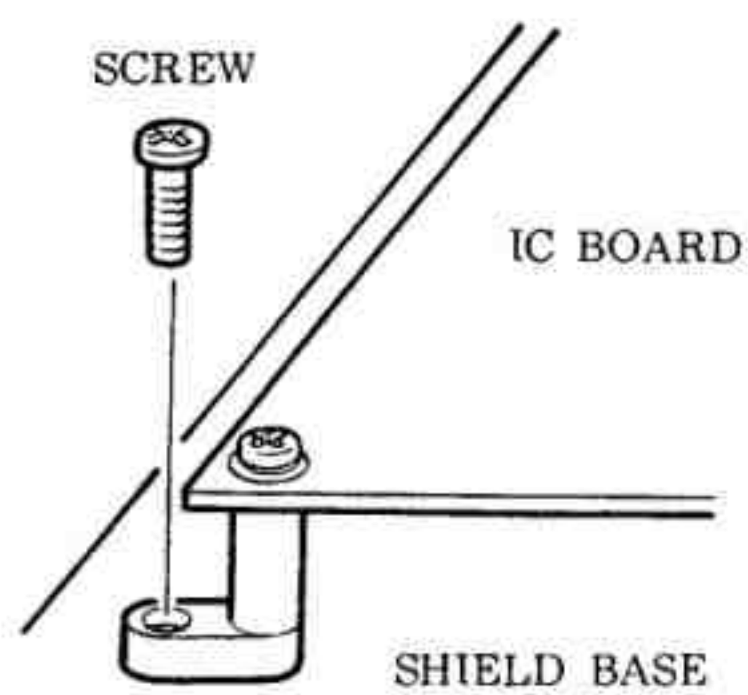
Before opening the shield case cover, take off the 4 tamperproof screw, 2 on the cover's underside and 1 and each on both sides.

The shield case can be pulled towards you by opening the cover, taking off the 4 connectors and removing the wood bracket (JI–0008).

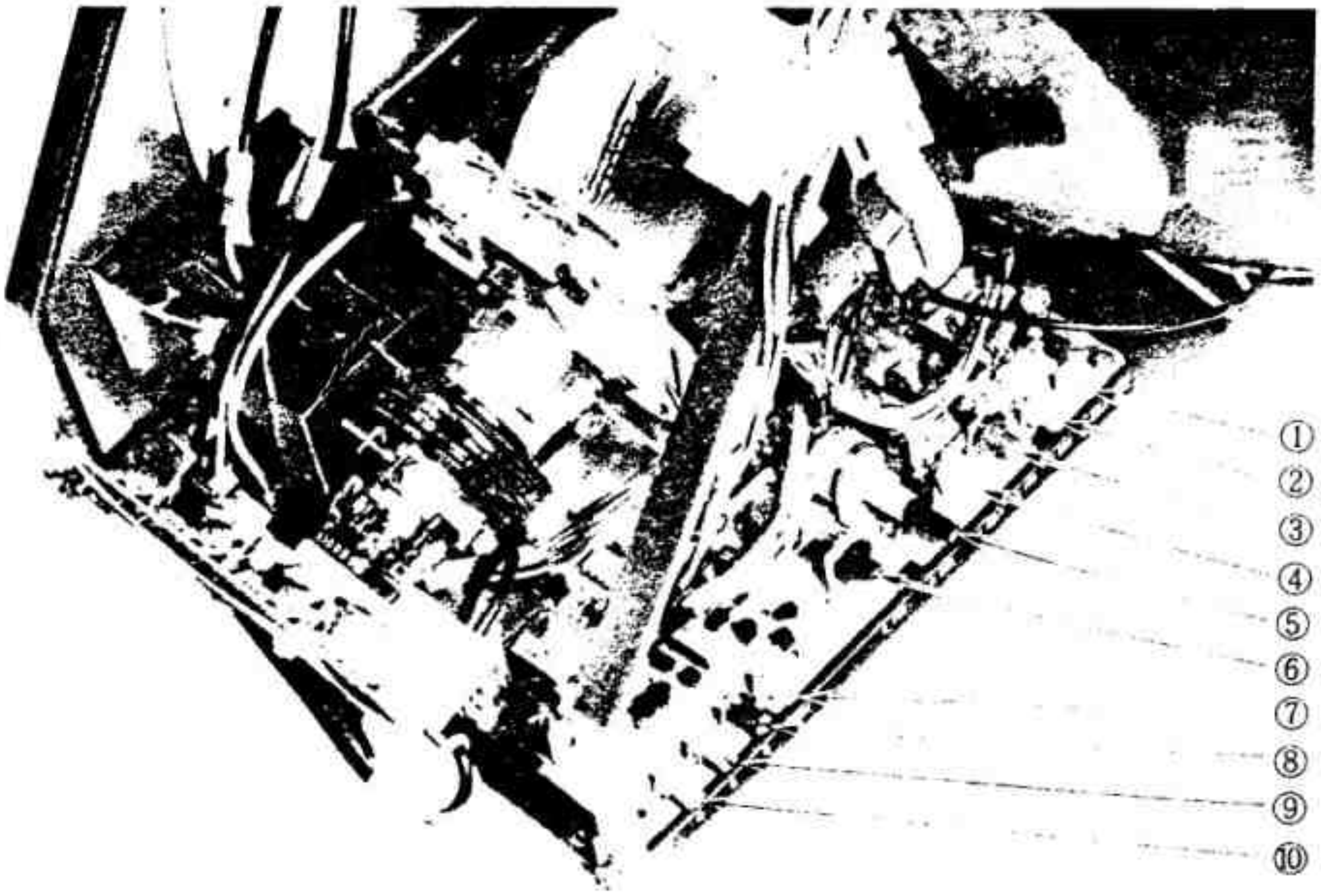


③ **Taking out the IC board**

When taking out the IC board, take off all of the IC board's connectors and the 6 screws.



11. 20 INCH MONITOR



① V. HOLD

② V. SIZE

③ V. POSITION

④ H. HOLD

⑤ H. SIZE

⑥ H. POSITION

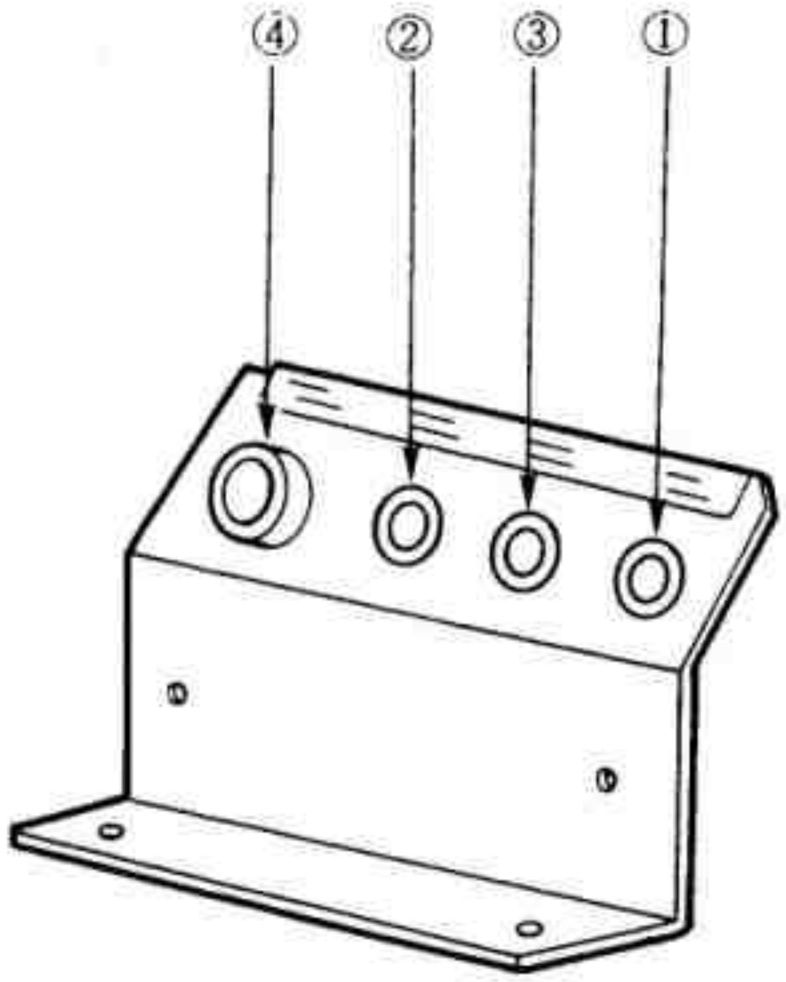
⑦ BRIGHT

⑧ B. GAIN

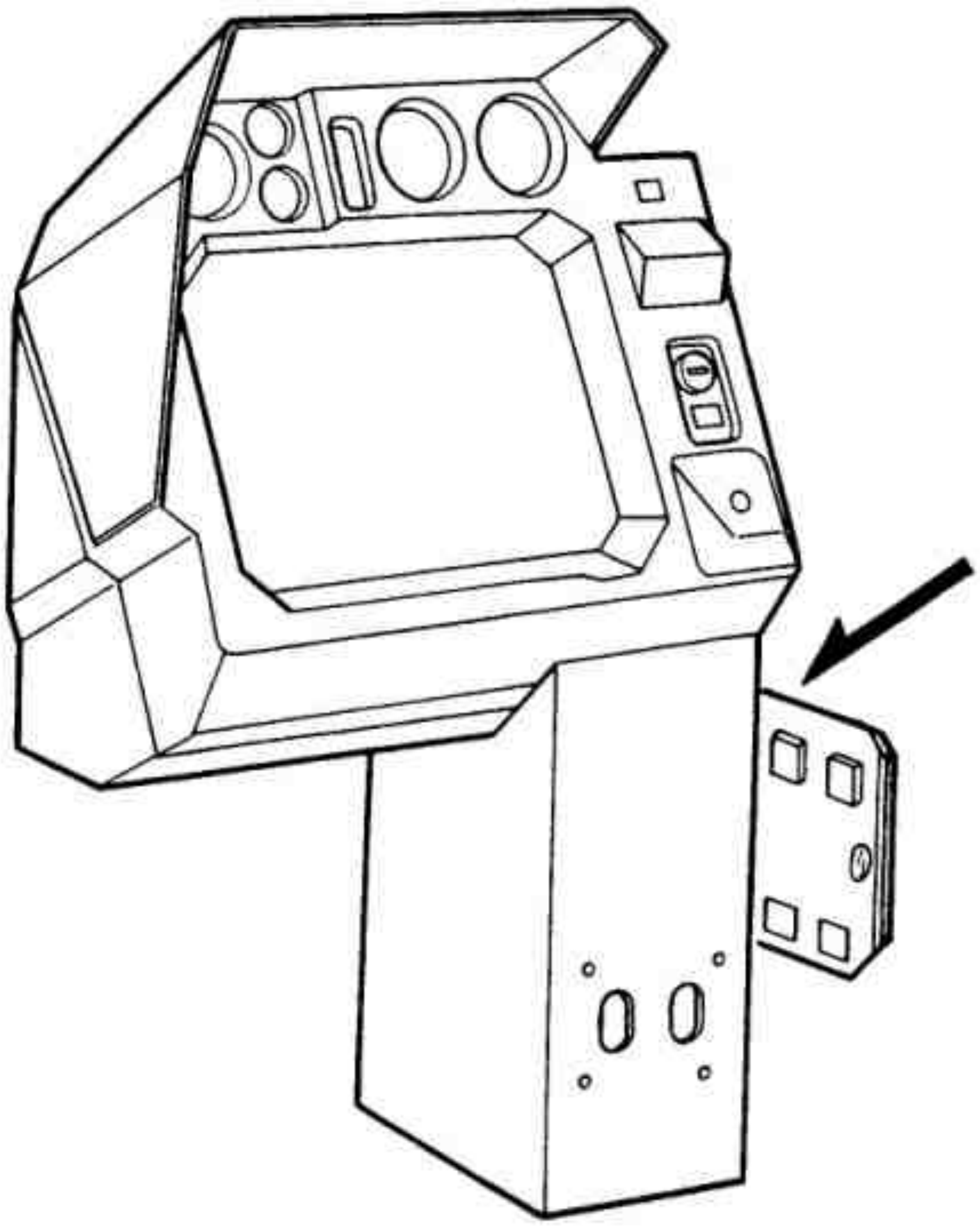
⑨ G. GAIN

⑩ R. GAIN

12. SERVICE SWITCH



SWITCH UNIT



Opening the coin chute door allows the service switch to operate.
The function of each switch is as folows:

① DEMAGNETIZER SW	Used for removing the on–screen color unevenness.
② SERVICE SWITCH	Used for the purpose of servicing and increasing the credits without registering on the meter.
③ TEST SWITCH	Used for displaying SELF–TBST screen modes.
④ VOL.	Used for adjusting the speaker's sound volume.

13. SELF – TEST

This test mainly checks the operation of game PCB's, discovers defects if any, and also checks monitor colors and audio quality. In addition, the test indicates dip SW assignment and has a Bookkeeping function.

TEST PROGRAM

(1) Memory Test : Checks the EPROM programs and RAM Area.
(2) Input Test : Tests the operation of COIN, CANNON, MISSILE, SERVICE switches, etc.
(3) Output Test : Tests the operation of each lamp. (NOT USE DELUXE TYPE)
(4) Sound Test : Checks the quality of the synthesized sound transmitted from the PCB.
(5) CRT Test : Checks colors displayed.
(6) Dip Switch Assignment : Indicates dip switch assignments.
(7) Bookkeeping : Indicates data on average score and play time.
(8) Backup RAM Clear : Clears Bookkeeping memory.

1. TEST OPERATION

(1) Push the TEST SW button to display the test menu (Fig. 1).

```
DIAGNOSTIC
 ⇨  INDIVIDUAL

      MEMORY  TEST
      INPUT   TEST
      OUTPUT  TEST
      SOUND   TEST
      C.R.T.  TEST
      DIP SWITCH ASSIGNMENTS
      BOOKKEEPING
      BACKUP RAM CLEAR
      EXIT

SELECT BY LEVER PUSH TEST BUTTON !
```

FIG . 1

(2) Move the lever upward or downward and bring the arrow to the desired position. Press the TEST SW button again to display the desired test.

(3) When each test is finished, press the TEST SW button again to display the test menu (Fig. 1).
To end the test program, bring the arrow to EXIT and push the TEST SW button.

* INDIVIDUAL and CONTINUE can be selected by pushing the START button when the arrow is at the top position.

INDIVIDUAL : Indicates only the item which the arrow points to. Push the TEST SW button again to display the test menu (Fig. 1).

CONTINUE : After displaying the item which the arrow points to, push the test SW button again to proceed to the following test in the order as indicated in the Fig. 1 test menu.

2. TEST ITEMS AND DESCRIPTION

(1) Memory Test

DIAGNOSTIC

MEMORY TEST

** ROMS TEST **

IC.	20	GOOD	IC.	29	GOOD	IC.	57	GOOD
IC.	21	GOOD	IC.	30	GOOD	IC.	58	GOOD
IC.	62	GOOD						
IC.	63	GOOD						

** RAMS TEST **

IC.	22	GOOD	IC.	31	GOOD	IC.	38	GOOD
IC.	23	GOOD	IC.	32	GOOD	IC.	39	GOOD
IC.	55	GOOD	IC.	60	GOOD	IC.	125	GOOD
IC	56	GOOD	IC.	61	GOOD	IC.	126	GOOD
IC.	132	GOOD	IC.	134	GOOD	IC.	150	GOOD
IC.	133	GOOD	IC.	135	GOOD	IC.	151	GOOD

CUSTOM IC TEST

IC.	37	GOOD	IC.	41	GOOD	IC.	53	GOOD
IC.	107	GOOD	IC.	108	GOOD			

Checks the game PCB's 8 main ROMs, 18 RAMs and 5 CUSTOM IC's.

GOOD means the IC is in "GOOD" operating condition.

If there exists any malfunctioning of the IC's, "BAD" will be indicated.

(2) INPUT TEST

DIAGNOSTIC

INPUT TEST

COIN CHUTE 1
COIN CHUTE 2
※ START SW
SERVICE SW
MISSILE
CANNON
LEVER UP DOWN 80H
LEVER LEFT RIGHT 80H
SLOTTLE 80H

※ START SW NOT USED DELUXE TYPE.

① Operate each switch. When the "OFF" condition is changed to "ON", the corresponding switch is in good working order.

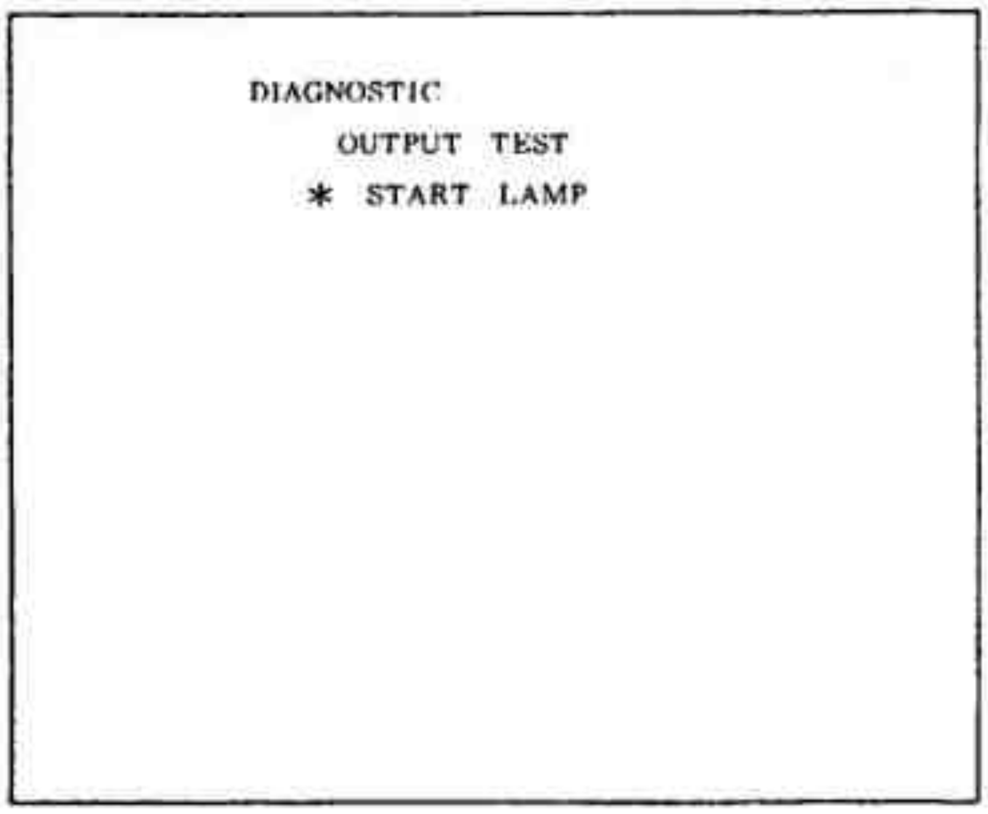
② Date values should increase when the handle grip is moved upward decrease when vhen it is moved downward and indicate 80 (±5)H when released.

③ Date values should increase when the handle grip is moved to the right decrease when it is moved to the left, and indicate 80(±5)H when released.

④ Date value should increase when the throttle lever is moved backward decrease when it is moved fackward, and indicate 80(±5)H when released.

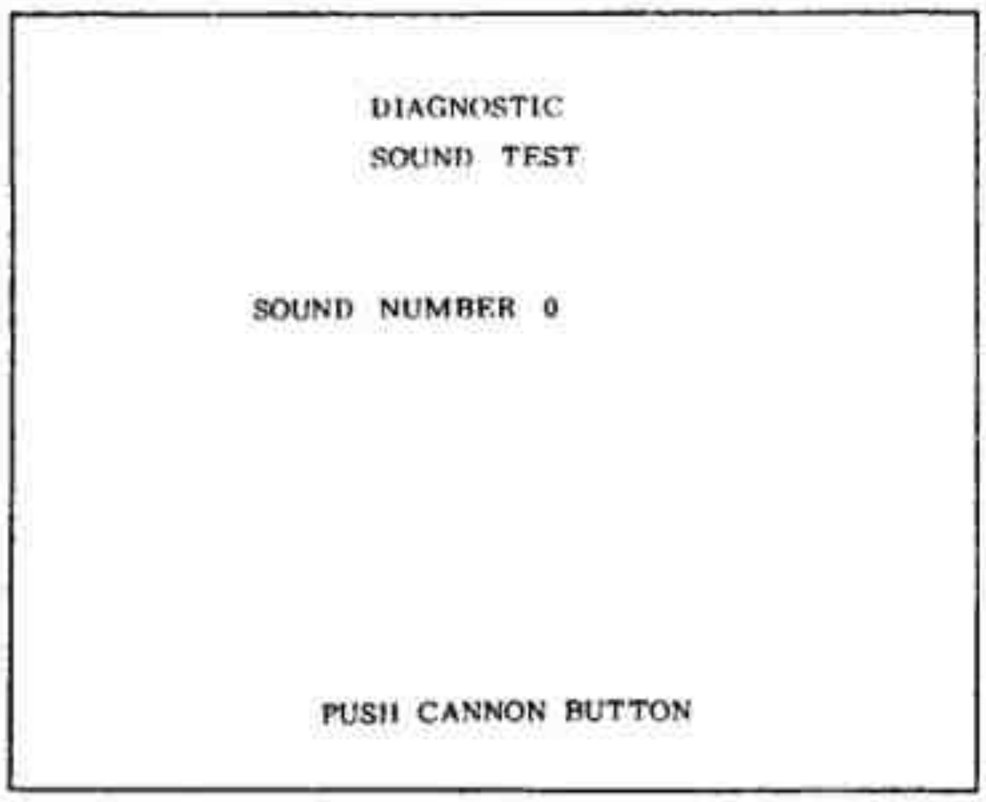
(3) OUTPUT TEST

Each lamp will flash if it is working properly.



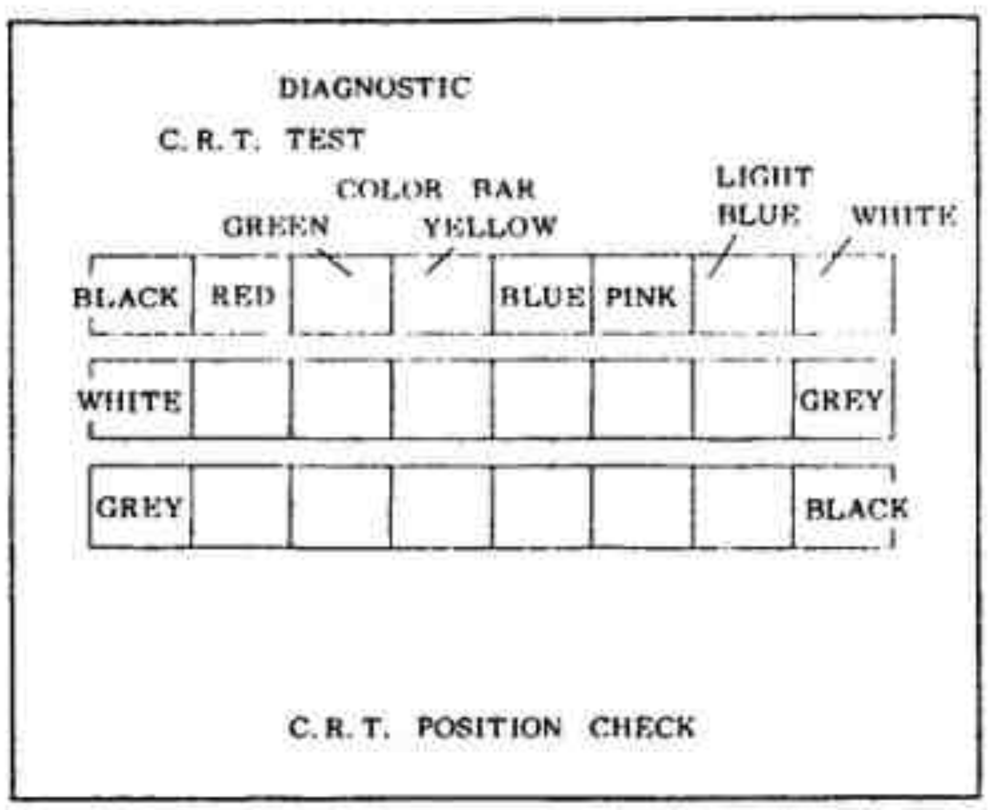
NOT USE DELUXE TYPE

(4) SOUND TEST



When the test has been completed push CANNON button.

(5) C. R. T. TEST



① Checks the C.R.T. position. Make sure that the on-screen corners are consistent, and then make size adjustments.

② Color check.

(6) DIP SWITCH ASSIGNMENTS

```
DIAGNOSTIC
DIP SWITCH ASSIGNMENTS
            1   2   3   4   5   6   7   8
DIPSW. A   OFF OFF OFF OFF OFF OFF OFF OFF
DIPSW. B   OFF OFF OFF OFF OFF OFF OFF OFF
• A 1234   COIN SW#1   1 COIN   1 CREDIT
• A 5678   COIN SW#2   1 COIN   1 CREDIT
• B 1      TYPE                 DELUXE
• B 2      ADVERTISE SOUND      OFF
• B 3      TIME 30 SEC          30SEC
• B 45     NUMBER OF SHIPS      3
• B 6      CONTINUE             OFF
• B 78     GAME DIFFICULTY      NORMAL
```

1. Present setting of each dip switch
2. Coin switch setting
3. Cabinet type
4. Advertise sound
5. Time 30 sec
6. Awarding player's additional plane(s)
7. To continue game or not
8. Game difficulty

(7) Bookkeeping

```
DIAGNOSTIC
      BOOKKEEPING
COIN CHUTE #1             8
COIN CHUTE #2             0
COIN      CREDITS       141
SERVICE   CREDITS      5727
TOTAL     CREDITS      5888

TOTAL TIME      15H 28M 11S

      PUSH CANNON BUTTON !
```

1. Operation frequency of coin chute 1
2. Operation frequency of coin chute 2
3. Number of coin credits
4. Usage frequency of service switch
5. Number of credits in total
6. Total working time (○○ H ○○ M ○○ S)

Press the CANNON button to display the following :

```
DIAGNOSTIC
      BOOK KEEPING

NUMBER OF GAME          203
AVE. SCORE             7230
TOP SCORE            123456
LOW SCORE             54321

     ** GAME   TIME **
TOTAL        ○○H○○M○○S
AVERAGE      ○○H○○M○○S
LONGEST      ○○H○○M○○S

    PUSH CANNON BUTTON
```

1. Total number of game plays
2. All players' average score
3. Highest score
4. Lowest score
5. Total game play time
6. Average game play time
7. Longest game play time

> Note : When any data exceeds the capacity, "OVERFLOW" will be shown on the screen. At this time, perform BACKUP RAM CLEAR.

(8) BACK UP RAM CLEAR

Bookkeeping data is stored for at least 3 days after the power is turned off. When clearing, bring the arrow to YES and push the TEST button.

```
DIAGNOSTIC
   BACKUP RAM  CLEAR
         NO
      -> YES

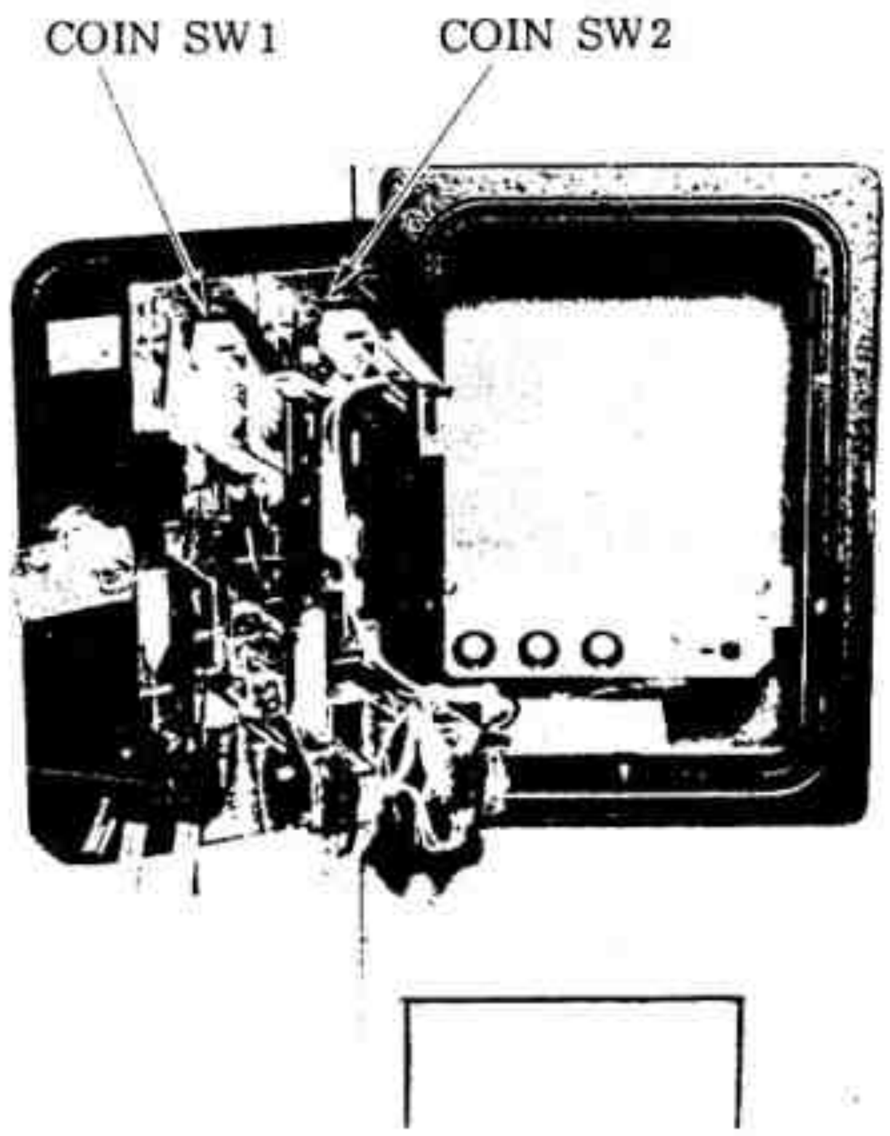



    SELECT  BY  LEVER
 PUSH  TEST  BUTTON !
```

14. DIP SWITCH SETTING

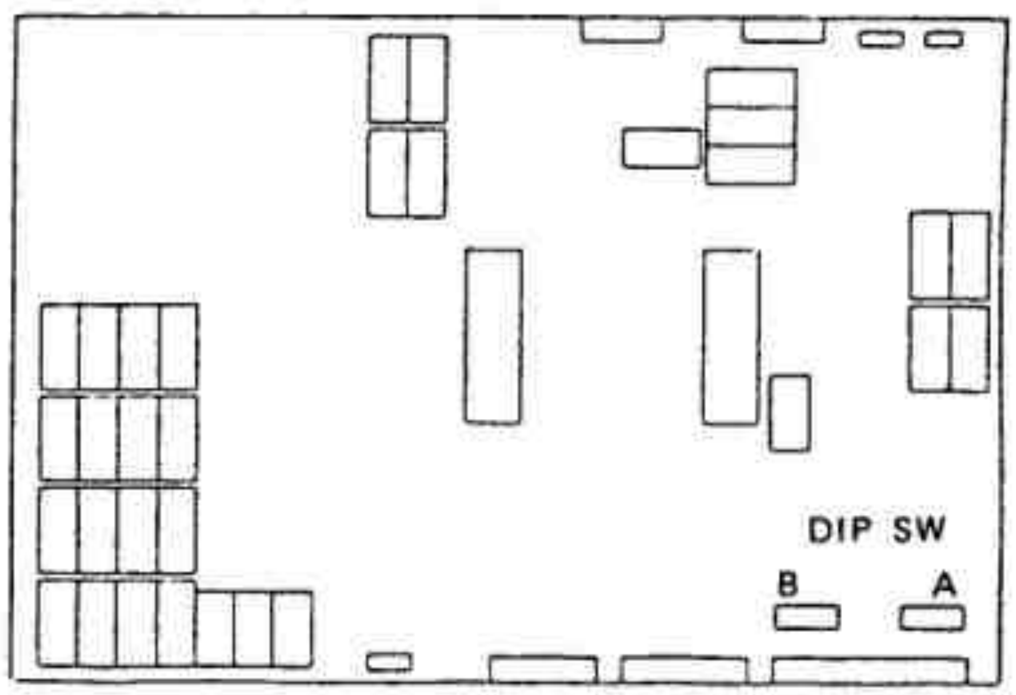
COIN/CREDIT OPTION SWITCH SETTING — DIP SW A

OPTION		1	2	3	4	5	6	7	8
1 COIN	1 CREDIT	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1 COIN	2 CREDITS	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
1 COIN	3 CREDITS	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
1 COIN	4 CREDITS	ON	ON	OFF	OFF	ON	ON	OFF	OFF
1 COIN	5 CREDITS	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
1 COIN	6 CREDITS	ON	OFF	ON	OFF	ON	OFF	ON	OFF
2 COINS	1 CREDIT	OFF	ON	ON	OFF	OFF	ON	ON	OFF
3 COINS	1 CREDIT	ON	ON	ON	OFF	ON	ON	ON	OFF
4 COINS	1 CREDIT	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
2 COINS	3 CREDITS	ON	OFF	OFF	ON	ON	OFF	OFF	ON
2 COINS 4 COINS 5 COINS 6 COINS	1 CREDIT 2 CREDITS 3 CREDITS 4 CREDITS	OFF	ON	OFF	ON	OFF	ON	OFF	ON
2 COINS 4 COINS	1 CREDIT 3 CREDITS	ON	ON	OFF	ON	ON	ON	OFF	ON
1 COIN 2 COINS 3 COINS 4 COINS 5 COINS	1 CREDIT 2 CREDITS 3 CREDITS 4 CREDITS 6 CREDITS	OFF	OFF	ON	ON	OFF	OFF	ON	ON
1 COIN 2 COINS 3 COINS 4 COINS	1 CREDIT 2 CREDITS 2 CREDITS 5 CREDITS	ON	OFF	ON	ON	ON	OFF	ON	ON
1 COIN 2 COINS	1 CREDIT 3 CREDITS	OFF	ON	ON	ON	OFF	ON	ON	ON
FREE PLAY		ON	ON	ON	ON	ON	ON	ON	ON
		COIN SW #1				COIN SW #2			



GAME OPTION SWITCH SETTING — DIP SW B

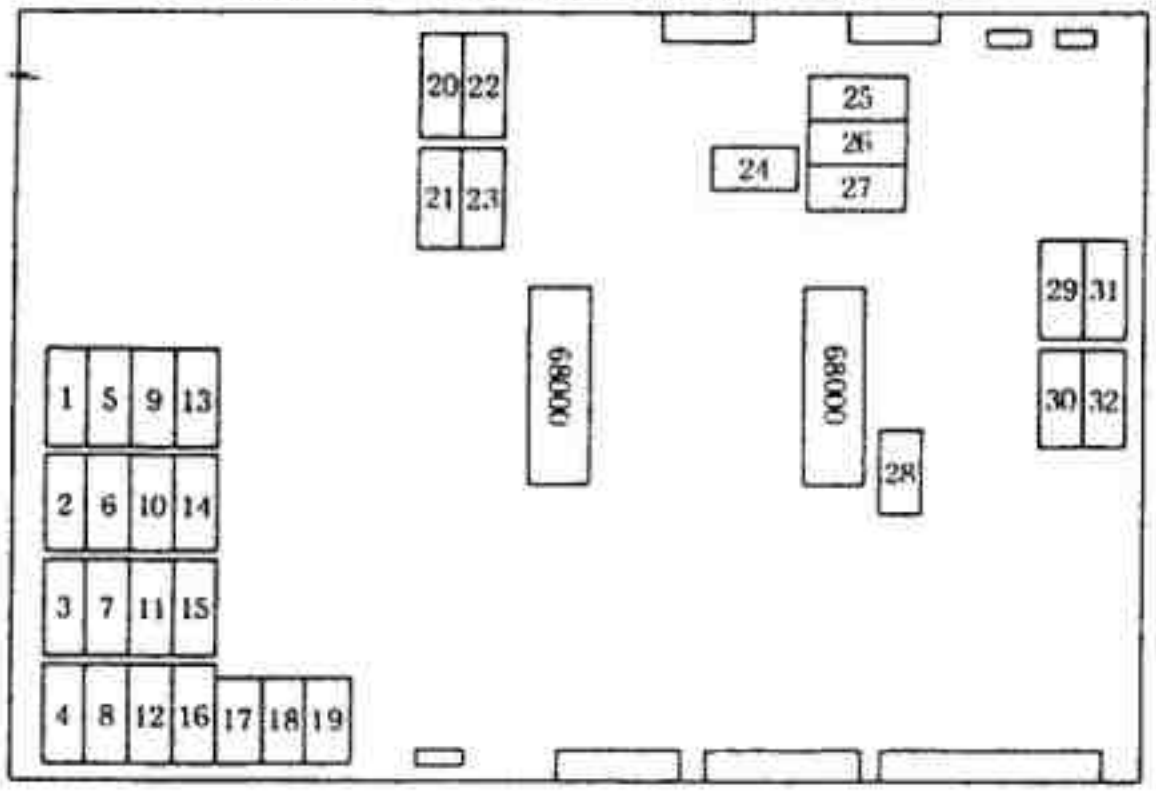
OPTION		1	2	3	4	5	6	7	8
CABINET TYPE	DELUXE	OFF							
	STANDING	ON							
ADVERTISE SOUND	OFF		OFF						
	ON		ON						
TIME 30 SEC				OFF					
TIME 0 SEC				ON					
NUMBER OF SHIPS	3				OFF	OFF			
	2				OFF	ON			
	4				ON	OFF			
	5				ON	ON			
CONTINUE							OFF		
NOT CONTINUE							ON		
GAME DIFFICULTY	NORMAL							OFF	OFF
	EASY							OFF	ON
	HARD							ON	OFF
	HARDEST							ON	ON



* The above TIME 30 SEC signifies that the allotted number of player's helicopters does not decrease regardless of how many are lost within said 30 second period.

15. EPROM / MASKROM LOCATIONS

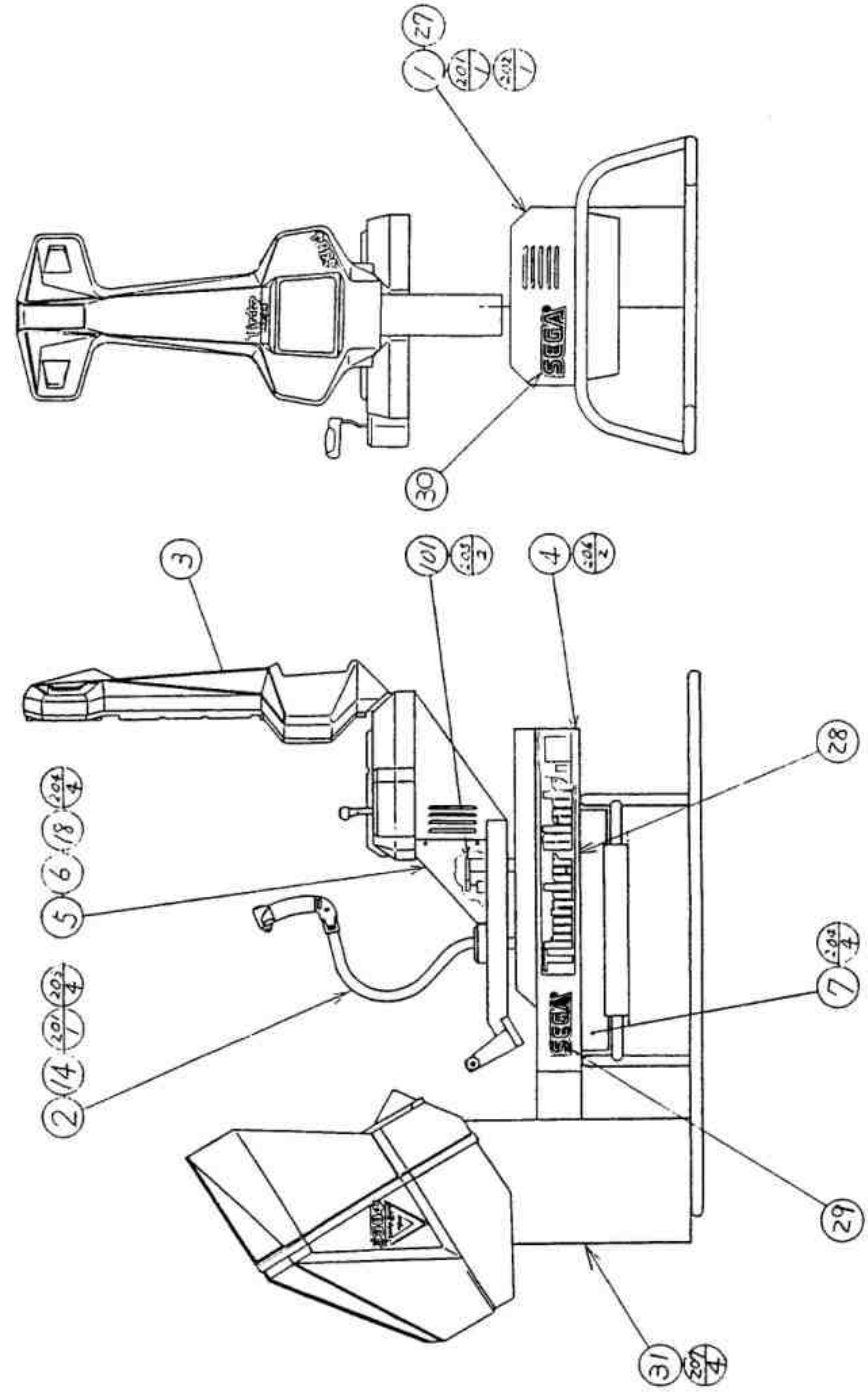
GAME BD THUNDER BLADE 834-6493~



	IC LOCATION	GAME BD NO.		MAIN WORK
		834-6493	834-6493-01	
1	IC 93	EPR-11335	〃	OBJECT (CHARACTER & SCENE SCENERY)
2	IC 97	EPR-11334	〃	
3	IC 101	EPR-11333	〃	
4	IC 105	EPR-11332	〃	
5	IC 92	EPR-11331	〃	
6	IC 96	EPR-11330	〃	
7	IC 100	EPR-11329	〃	
8	IC 104	EPR-11328	〃	
9	IC 91	EPR-11327	〃	
10	IC 95	EPR-11326	〃	
11	IC 99	EPR-11325	〃	
12	IC 103	EPR-11324	〃	
13	IC 90	EPR-11323	MPR-11323	
14	IC 94	EPR-11322	MPR-11322	
15	IC 98	EPR-11321	MPR-11321	
16	IC 102	EPR-11320	MPR-11320	
17	IC 154	EPR-11314	〃	FIX SCROLL CHARACTER
18	IC 153	EPR-11315	〃	
19	IC 152	EPR-11316	〃	
20	IC 58	EPR-11304	〃	MAIN PROGRAM
21	IC 63	EPR-11305	〃	
22	IC 57	EPR-11306	〃	
23	IC 62	EPR-11307	〃	
24	IC 17	EPR-11312	〃	SOUND PROGRAM
25	IC 11	EPR-11317	〃	SOUND DATA
26	IC 12	EPR-11318	〃	
27	IC 13	EPR-11319	〃	
28	IC 40	EPR-11313	〃	ROAD DATA
29	IC 21	EPR-11310	〃	SUB PROGRAM
30	IC 30	EPR-11311	〃	
31	IC 20	EPR-11308	〃	
32	IC 29	EPR-11309	〃	

16. PARTS LIST

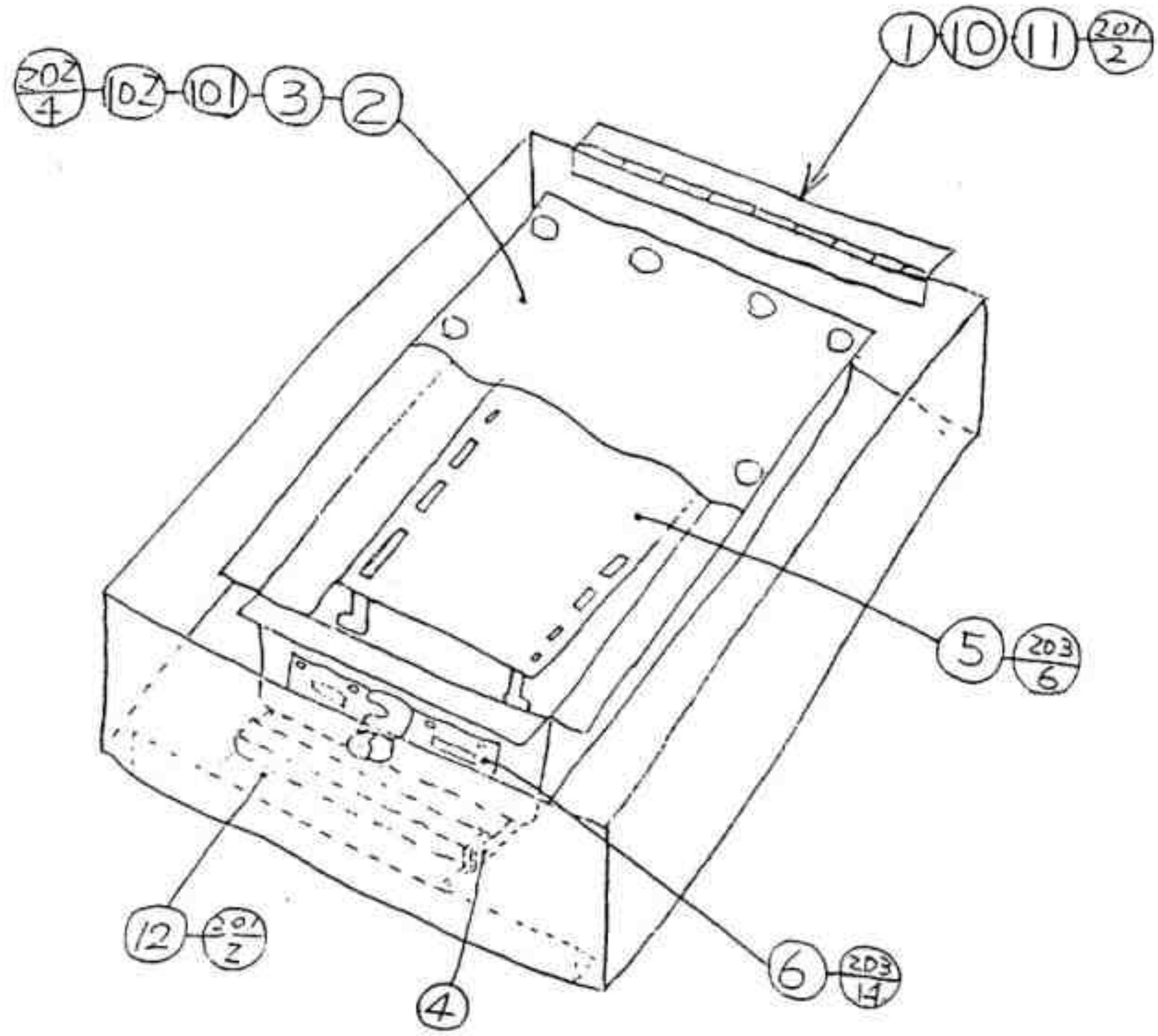
① TOP ASSY THUNDER BLADE DX (JI−0000) (D−1/2)



① TOP ASSY THUNDER BLADE DX (JI−0000) (D−2/2)

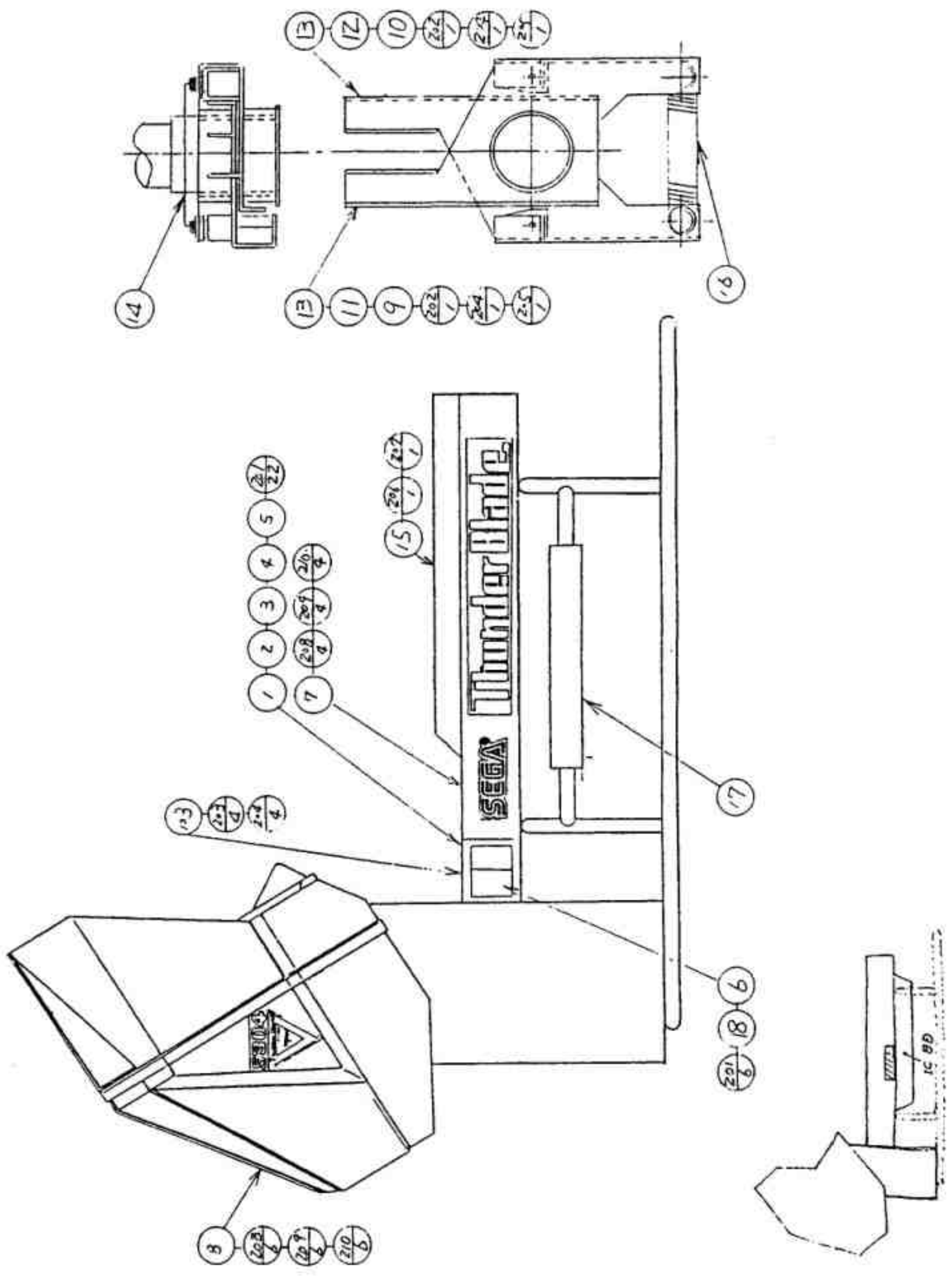
ITEM NO.	PART NO.	DESCRIPTION
1	JI−1000	ASSY BASE
2	JI−2000	ASSY HANDLE & SHAFT
3	JI−3000	ASSY FRAME
4	JI−4000	ASSY PWR SPLY
5	JI−0001	EARPHONE JACK COVER
6	JI−0002	EARPHONE PLATE
7	JI−0003	ASSY GAME BD & SHIELD CASE
8	420−5861−01	OWNERS MANUAL THUNDER BLADE DELUXE ENG
9	421−5800−70	ORIGINAL SEAL THUNDER BLADE
10	421−7129	ADJ & I/O INSTR SH THUNDER BLADE
14	JI−1114	SHOULDER SCR
15	SGM−3863	POLTHN COVER 950×1800×1700
16	421−6594	STICKER SERIAL NO INFO
17	421−6671	STICKER DANGER HIGH VOLTAGE
18	839−0098	MINI JACK BD
19	421−6709	STICKER SERVICE INSTR
20	420−5318	DISPLAY MANUAL 20" 200−5090 ENG
22	SGB−1035X	KEY BAG
23	SGM−2675	POLYTHYLENE BAG 240×370
24	540−0018	DRIVER FOR TAMP SCR M4
	540−0006	WRENCH FOR TAMP SCR M4
25	540−0017	DRIVER FOR TAMP SCR M5
	540−0007	WRENCH FOR TAMP SCR M5
26	421−6653−01	TAG FOR SHIPPING ENGLISH
27	JI−0009	SHIPPING BRACKET
	JI−1016	CENTERING SPRING
	JI−1110	CENTERING SPRING S
	JI−3105	MASK A
	JI−3106	MASK B
	JI−3111	RUBBER RING
28	JI−0010	STICKER BASE
29	421−7147	STICKER SEGA STM 40
30	421−7148	STICKER SEGA STM 59
31	117−5111	PLATE ELEC SPEC
	421−6119−91	STICKER FCC
	421−6120	STICKER SEGA USA
101	601−6005	ADJUST GEAR
102	280−0479	SPACER TUBE 6mm
201	054−0006	U−NUT
202	030−0650	HEX BLT M6×50
203	008−0545	TMP PRF SCR TH M5×45
204	008−0416	TMP PRF SCR TH M4×16
205	000−0408FS	M SCR PH W/FS M4×8
206	000−0516	M SCR PH M5×16
207	047−0001	RVT OPEN TYPE 3.2×4.4

② ASSY GAME BD & SHIELD CASE (JI−0003)



ITEM NO.	PART NO.	DESCRIPTION
1	JI−0004	SHIELD CASE COVER
2	JI−0005	SHIELD CASE
3	JI−0006	SHIELD PLATE
4	JI−0007	WOODEN SPACER
5	834−6493	GAME BD THUNDER BLADE
	834−6493−01	GAME BD THUNDER BLADE
6	839−0129	FILTER BD THUNDER BLADE DX
7	600−5634	WIRE HARN AMP 10P & JST 10P
8	600−5635	WIRE HARN AMP 50P & JST×5
9	600−5636	WIRE HARN AMP 20P & JST 12P
10	220−5044−01	MAG LOCK MASTER W/O KEY
11	TH−1015	LOCKING TONGUE
12	JI−0008	WOOD BRACKET
101	280−5079	NYLATCH
102	280−5080	NYLATCH PLUNGER
103	280−5008	CORD CLAMP √15
201	008−0410	TMP PRF SCR TH M4×10
202	004−0410−FS	M SCR PH W/FS M4×10
203	010−0310−F	S-TITE SCR PH W/F M3×10

③ ASSY BASE (JI-1000) (D-1/3)



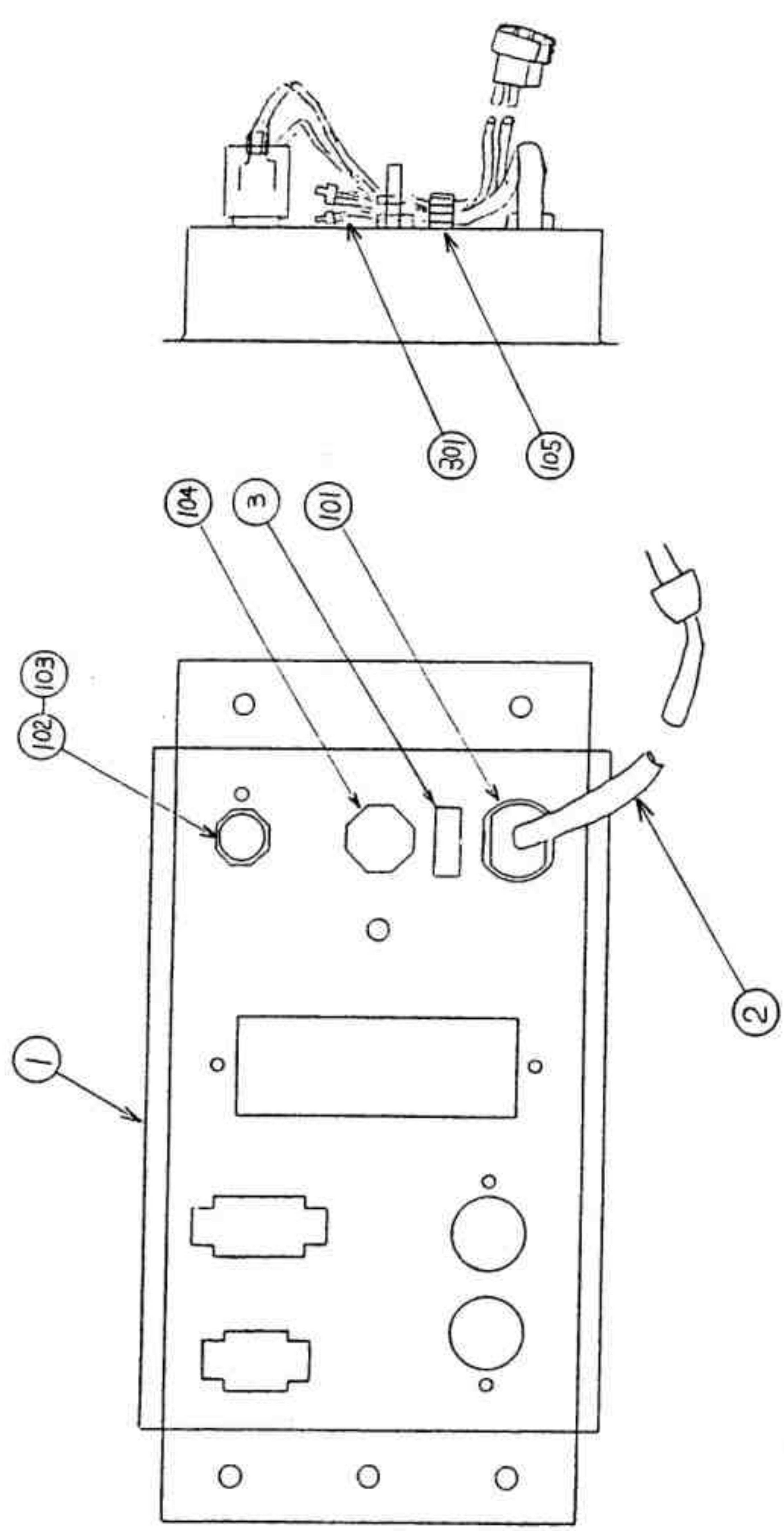
③ ASSY BASE (JI−1000) (D−2/3)

ITEM NO.	PART NO.	DESCRIPTION
1	JI−1001Y	BASE
2	JI−1002	BASE COVER FRONT
3	JI−1003	BACK PANEL
4	JI−1004	BASE COVER RIGHT
5	JI−1005	BASE COVER LEFT
6	JI−1006	ASSY AC UNIT
7	JI−1100	ASSY MECHANISM
8	JI−1200	ASSY TV TOWER
9	JI−1009	CENTERING ARM A
10	JI−1010	CENTERING ARM B
11	JI−1011	SPRING HOOK A
12	JI−1012	SPRING HOOK B
13	JI−1013	STOPPER
14	JI−1014	RUB RING
15	JI−1015	CENTERING PAD
16	JI−1016	CENTERING SPRING
17	JI−1017	LADDER PAD
18	JI−1008	AC BRACKET COVER
19	600−5630	WIRE HARN EXT JSJ 10P
20	600−5631	WIRE HARN EXT JST 20P
21	600−5632	WIRE HARN EXT JST 25P
22	600−5633	WIRE HARN EXT JST 12P
23	421−6672	STICKER MAIN SW PUSH PUSH OFF
101	601−5564	STOPPER
103	260−0011−01	AXIAL FLOW FAN AC100V 50−60Hz
104	280−0425	CORD CLAMP φ10
105	280−5009	CORD CLAMP φ21
106	601−5525−160	BUSH 1.2t
201	008−0408	TMP PRF SCR TH M4×8
202	000−0430	M SCR PH M4×30
203	000−0450	M SCR PH M4×50
204	061−0004	SPR WSHR M4
205	065−0006	E RING 6mm
206	030−0610	HEX BLT M6×10
207	060−0006	FLT WSHR M6
208	030−0820	HEX BLT M8×20
209	061−0008	SPR WSHR M8
210	060−0008	FLT WSHR M8
301	SGB−3859−3	WIRE HARN EARTH
	211−0167	TERM LUG RND ID 5
302	SGB−3859−6	WIRE HARN AC FAN
	211−0085	CONN PLUG AMP 2P BROWN
303	SGB−3859−8	WIRE HARN EXT AC
	211−0085	CONN PLUG AMP 2P BROWN
	211−0080	CONN CAP 2P BROWN
304	SGB−3859−13	WIRE HARN EXT +12V
	211−0043	CONN PLUG AMP 2P WHITE
	211−0044	CONN CAP AMP 2P WHITE
305	SGB−3859−14	WIRE HHRN EXT SPEAKER
	211−0045	CONN PLUG AMP 6P WHITE
	211−0122	CONN CAP AMP 4P ORANGE
	211−0121	CONN CAP AMP 4P RED

③ ASSY BASE (JI−1000)

ITEM NO.	PART NO.	DESCRIPTION
306	SGB−3859−24	WIRE HARN EXT VR
	211−0098	CONN PLUG AMP 3P ORANGE
	211−0119	CONN CAP AMP 3P ORANGE
	211−0041	CONN PIN AMP
	211−0042	CONN SOCKET AMP
	601−0460	PLASTIC TIE BELT 85mm

④ ASSY AC UNIT (JI−1006) (D−1/2)

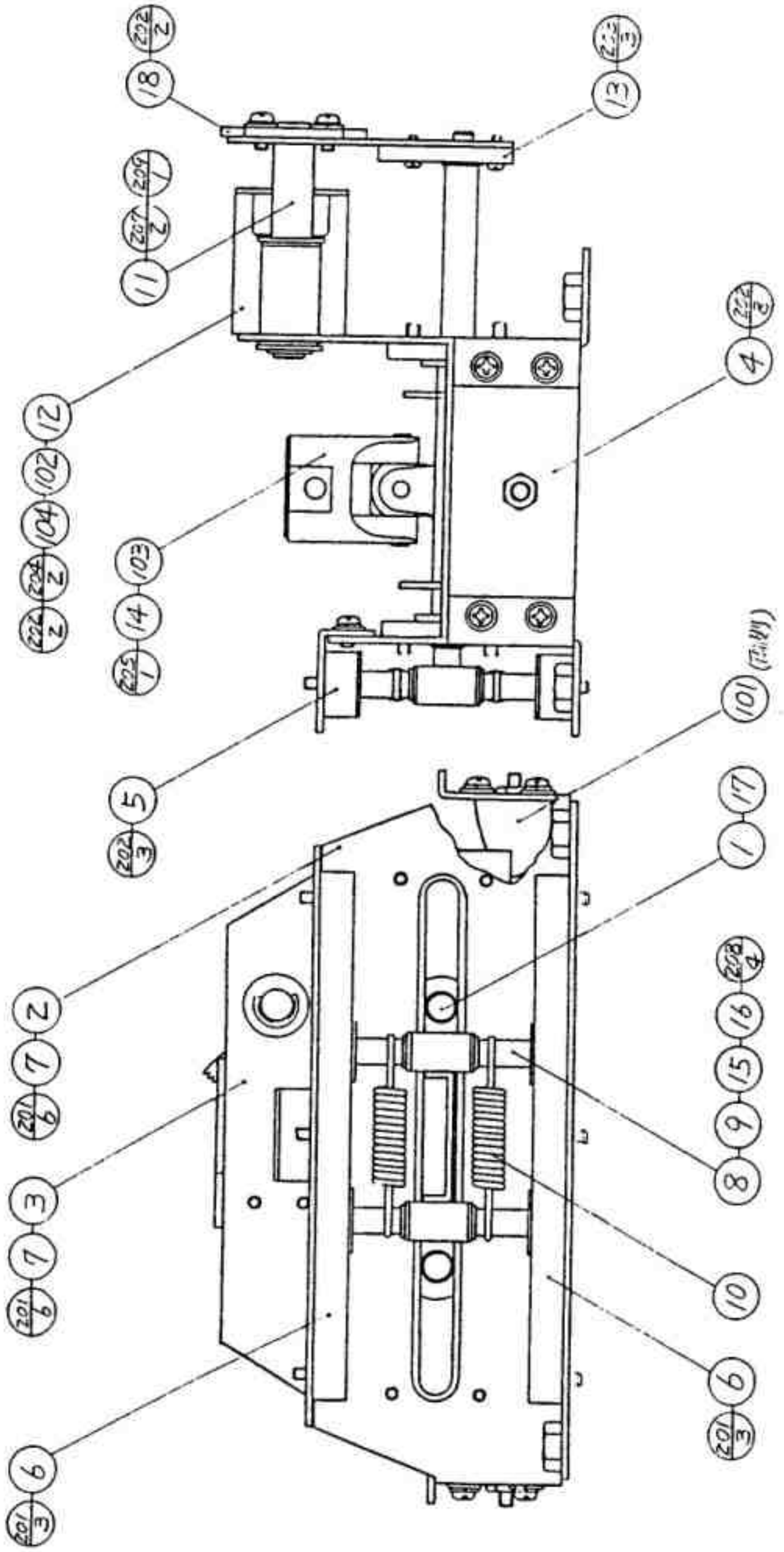


④ ASSY AC UNIT (JI−1006)

(D−2/2)

ITEM NO.	PART NO.	DESCRIPTION
1	JI−1007	AC BRACKET
2	600−0110	CABLE & PLUG ASSY W/EARTH 0.16×41×3 L=3m
101	280−0418	BUSHING STRAIN RELIEF 7.6
102	509−0039	SW PB TYPE DS−139
103	509−0049	SW STOPPER ⌀12
104	280−0417	TERM BINDING POST BLACK
105	280−5008	CORD CLAMP ⌀15
301	SGB−3859−2	WIRE HARN AC100V
	211−0118	CONN CAP AMP 3P RED
	211−0042	CONN SOCKET AMP
	280−5015	FASTON RCPT 187
	601−5905	ONE TOUCH SLEEVE 187
	601−0460	PLASTIC TIE BELT 85mm
	209−0023	CONN CLOSED END

⑤ ASSY MECHANISM (JI−1100) (D−1/2)



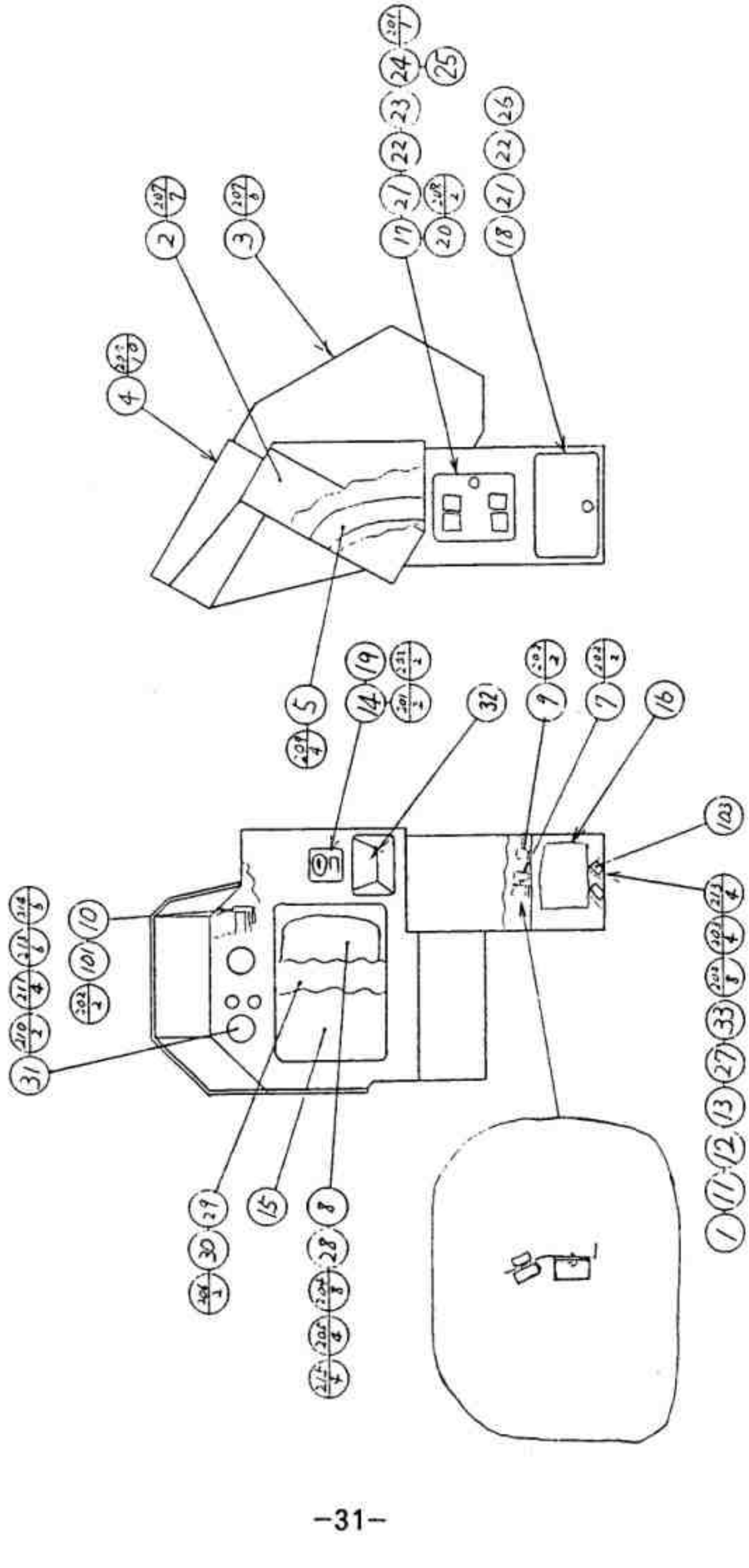
⑤ ASSY MECHANISM (JI−1100)

(D−2/2)

ITEM NO.	PART NO.	DESCRIPTION
1	JI−1101	SLIDE UNIT
2	JI−1102	SLIDE RAIL BRKT. R
3	JI−1103	SLIDE RAIL BRKT. L
4	JI−1104	STOPPER BRKT
5	JI−1105	RAIL BRKT
6	JI−1106	CENTERING RAIL
7	JI−1107	SLIDE RAIL
8	JI−1108	SPRING PIN
9	JI−1109	CENTERING COLLAR
10	JI−1110	CENTERING SPRING S
11	JI−1111	VOL ROD
12	JI−1112	VOL BRKT
13	JI−1113	VOL GUIDE
14	JI−1114	SHOOLDER SCR
15	JI−1115	COLLAR RING
16	JI−1116	CENTERING RING
17	JI−1117	SLIDE RING
18	601−6005	ADJUST GEAR
101	601−5564	STOPPER
102	220−5130	VOL CONT B−5K CHM
103	111−0011	UNIVERSAL JOINT ∅16
104	601−5415	GEAR 20
201	001−0416	M SCR FH M4×16)
202	000−0408−FS	M SCR PH W/FS M4×8
203	000−0310−F	M SCR PH W/F M3×10
204	028−0011	SET SCR HEX SKT CP UNBR M4×4
205	054−0006	U NUT M6
207	060−0010	FLT WSHR M10
208	065−0006	E RING 6mm
209	065−0008	E RING 8mm
301	SGB−3859−20	WIRE HARN VR U/D
	211−0099	CONN PLUG AMP 3P YELLOW
	211−0041	CONN PIN AMP
	601−0460	PLASTIC TIE BELT 85mm

⑥ ASSY TV TOWER (JI−1200)

(D−1/3)



⑥ ASSY TV TOWER (JI−1200) (D−2/3)

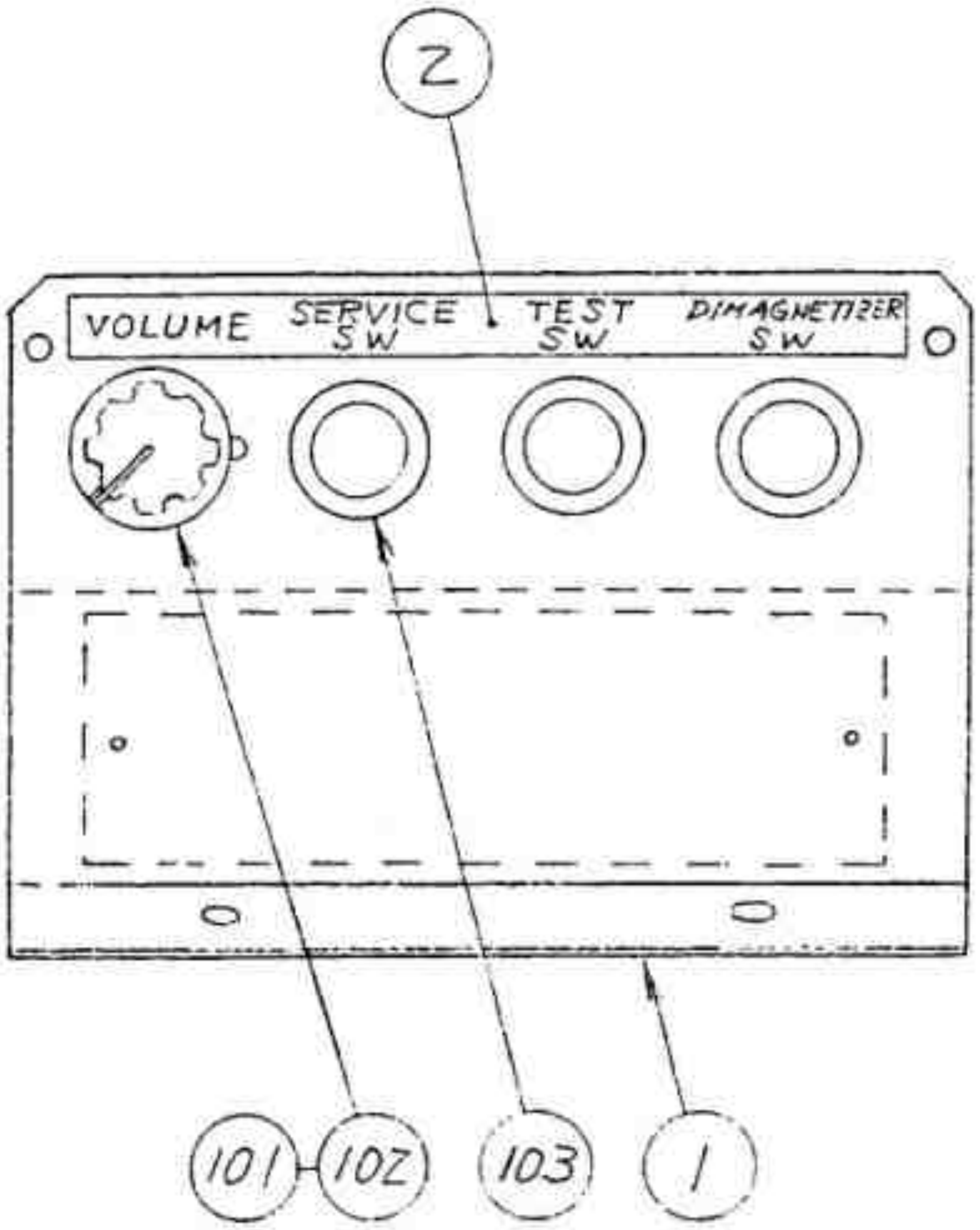
ITEM NO.	PART NO.	DESCRIPTION
1	JI−1201	T.V. TOWER
2	JI−1218	ASSY TOP HOOD FRONT EXPORT
3	JI−1203	ASSY TOP HOOD REAR
4	JI−1204	TOP COVER
5	JI−1205	COIN CHUTE UPPER
6	421−6591−01	STICKER COIN METER
7	JI−1206	SW UNIT
8	200−5095	ASSY CLR DSPL 20 TYPE 100V
9	JI−1208	COIN CHUTE LOWER
10	JI−1209	LIGHT BRKT
11	JI−1210	GLASS HOLDER UPPER
12	JI−1211	GLASS HOLDER SIDE L
13	JI−1212	GLASS HOLDER LOWER
14	JI−1213−01	COIN ENTRY PLATE
15	JI−1214	WINDOW GLASS
16	JI−1215	CASH BOX
17	220−5231−02	ASSY COIN CHUTE DOOR USA 25¢ TWIN
18	220−5220	CASH BOX DOOR
19	220−5232−03	COIN ENTRY 24.7×2t
20	MX−1009	COIN CHUTE MIDDLE
21	DP−1167	TNG LKG
22	HN−1050	SPACER RING
23	109−0045	KEY HOLDER
24	220−5044−01	MAG LOCK W/O KEY
25	220−5045−01	KEY MASTER FOR 220−5044−01
26	220−5046−91	MAG LOCK W/KEY
27	HG−1035	MASK BRACKET
28	TY−1019	BRKT TV
29	TB−3002	TV MASK GRAYSMOKE
30	TB−3003	TV MASK 20
31	JI−1216	DESIGN PLATE
32	JI−0017	INSTRUCTION PLATE EXPORT
33	JI−1217	GLASS HOLDER SIDE R
	JI−1219	DENOMINATION PLATE
	421−7150−01	DENOMINATION SH 3×25¢
101	390−5199	ASSY FL LIGHT 15W 50Hz
102	509−5050	PUSH BUTTON SWITCH IT YELLOW
103	220−5064	MAG CNTR 6DIG DC 5V W/L & DIO
104	280−5008	CORD CLAMP ∅15
105	280−5009	CORD CLAMP ∅21
201	000−0306−FS	M SCR PH W/FS M3×6
202	000−0410−FS	M SCR PH W/FS M4×10
203	000−0416	M SCR PH M4×16
204	000−0510−S	M SCR PH W/S M5×10
205	000−0520−S	M SCR PH W/S M5×20
206	029−0160	M SCR FH BLK M3×10
207	008−0416	TMP PRF SCR TH M4×16
208	010−0306−F	S-TITE SCR PH W/F M3×6
209	010−0410−F	S-TITE SCR PH W/F M4×10
210	031−0420−B	CRG BLT BLK M4×20
211	031−0440−B	CRG BLT BLK M4×40
213	051−0004	FLG NUT M4
214	060−0004	FLT WSHR M4
215	069−0001	FLT WSHR 5.5−20×1.6
	008−0408	TMP PRF SCR TH M4×8

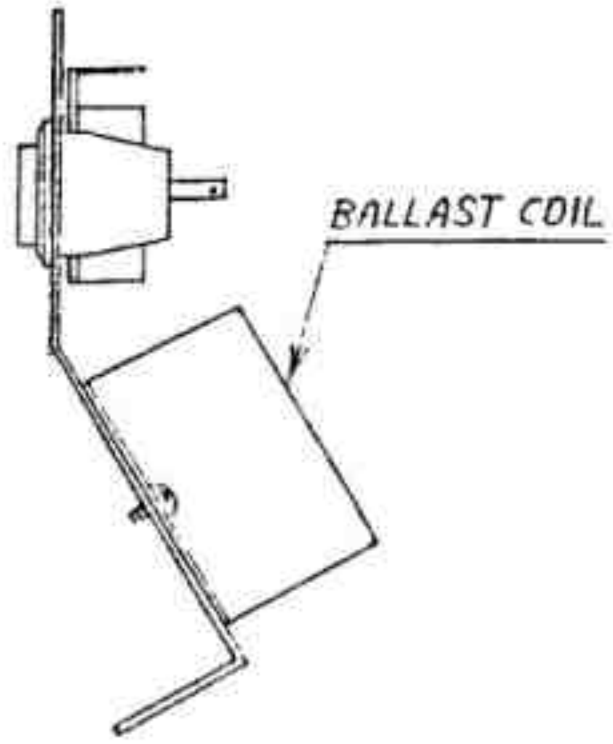
⑥ ASSY TV TOWER (JI−1200)

(D−3/3)

ITEM NO.	PART NO.	DESCRIPTION
301	SGB−3859−7	WIRE HARN EXT DIMAG
	211−0085	CONN PLUG AMP 2P BROWN
	211−0117	CONN CAP AMP 2P YELLOW
302	SGB−3859−9	WIRE HARN MONITOR
	211−0085	CONN PLUG AMP 2P BROWN
	600−5133	CABLE & CONN 300L
	209−0023	CONN CLOSED END
303	SGB−3859−10	WIRE HARN EXT FL 15W
	211−0085	CONN PLUG AMP 2P BROWN
	211−0116	CONN CAP AMP 2P ORANGE
	211−0115	CONN CAP AMP 2P RED
304	SGB−3859−11	WIRE HARN BALLAST COIL
	211−0094	CONN PLUG AMP 2P RED
	209−0023	CONN CLOSED END
305	SGB−3859−12	WIRE HARN FL 15W
	211−0095	CONN PLUG AMP 2P ORANGE
	209−0023	CONN CLOSED END
306	SGB−3859−21	WIRE HARN COIN METER
	211−0087	CONN PLUG AMP 4P BROWN
	209−0023	CONN CLOSED END
307	SGB−3859−22	WIRE HARN COIN SW
	211−0073	CONN PLUG AMP 4P WHITE
	280−5016	FASTON RCPT 205
308	SGB−3859−23	WIRE HARN START SW
	211−0101	CONN PLUG AMP 4P ORANGE
	280−0472	FASTON RCPT 110
	211−0041	CONN PIN AMP
	211−0042	CONN SOCKET AMP
	601−0460	PLASTIC TIE BELT 85mm

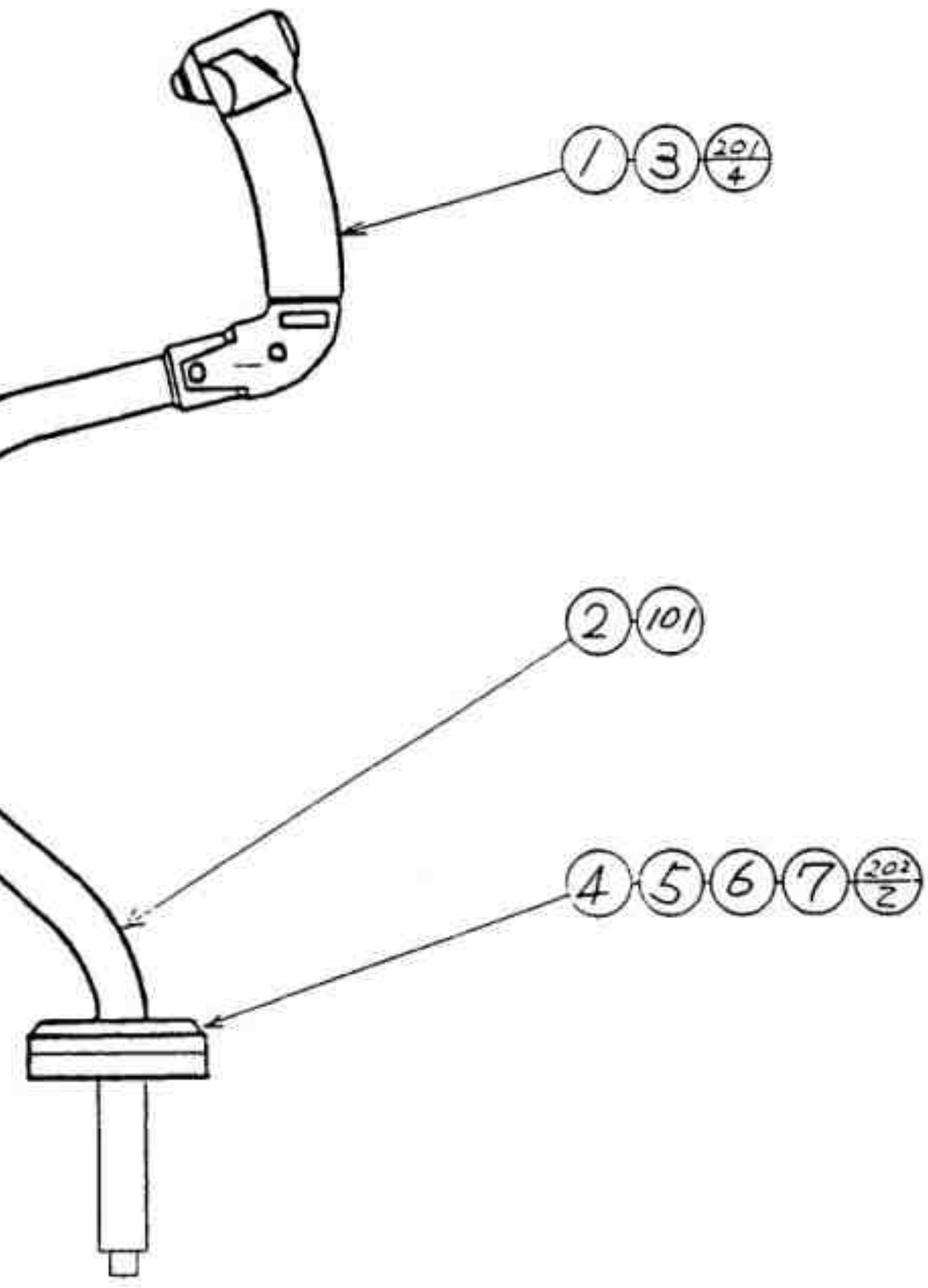
⑦ SW UNIT (JI−1206)



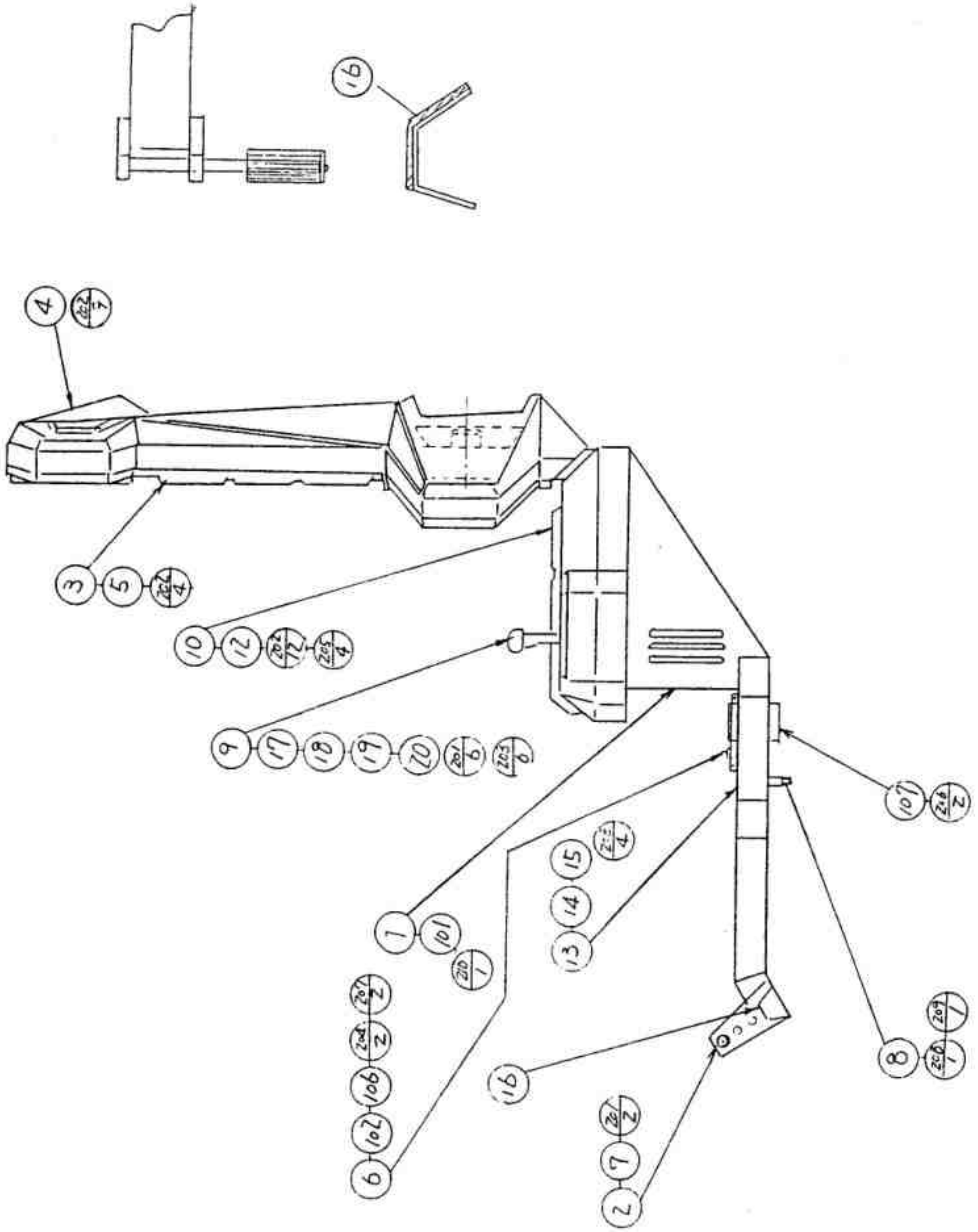


ITEM NO.	PART NO.	DESCRIPTION
1	JI-1207	SW BRACKET
2	421−6481	STICKER SW
101	601−0042	KNOB 22mm
102	220 5179	VOL CONT B 5K OHM
103	509−5028	SW PB 1M
201	010−0408−F	S-TITE SCR PH W/F M4×8
301	SGB−3859−16	WIRE HARN SW UNIT
	211−0085	CONN PLUG AMP 2P BROWN
	211−0098	CONN PLUG AMP 3P ORANGE
	211−0086	CONN PLUG AMP 3P BROWN
	211−0041	CONN PIN AMP
	280−0472	FASTON RCPT 110
	601−5904	ONE TOUCH SLEEVE 110
	601−0460	PLASTIC TIE BELT 85mm

⑧ ASSY HANDLE & SHAFT (JI-2000)



ITEM NO.	PART NO.	DESCRIPTION
1	JI-2003	ASSY HANDLE GRIP
2	JI-2008Y	HANDLE SHAFT
3	117-5161	EMBLEM THUNDER BLADE
4	JI-2009	COVER PLATE
5	JI-3003	BALL
6	JI-3004	BALL COVER UPPER
7	JI-3005	BALL COVER LOWER
8	600-5628	CONN PLUG 2P, 3P & PLUG JST 2P, 3P
101	100-5057	BEARING ⌀15
201	008-0512	TMP PRF SCR TH M5×12
202	012-0420	TAP SCR PH M4×20



⑨ ASSY FRAME (JI-3000)

(D-2/3)

ITEM NO.	PART NO.	DESCRIPTION
1	JI-3001Y	FRAME
2	JI-3002	STEP PAD
3	JI-3007	BACK SEAT FRONT W/SPEAKER
4	JI-3011	BACK SEAT REAR W/FLASH COVER
5	JI-3016	HOLDER PLATE
6	JI-3017	VOLUME BRACKET
7	JI-3018	SPACER
8	JI-1015X	CENTERING PAD
9	JI-3100	ASSY THROTTLE
10	JI-3006	SEAT
11	600-5626	CONN PLUG 4P & JST 6P
12	JI-3019	WOODEN BASE
13	JI-3020	STEP MAT-R
14	JI-3021	STEP MAT-L
15	JI-3022	L-BRACKET
17	JI-3104	DESIGN PLATE
18	JI-3015	MASK A
19	JI-3106	MASK B
20	JI-3112	THROTTLE COVER
101	390-5197	XENON FLASH CU25A-NI
102	220-5130	VOL CONT B-5K OHM
103	280-5008	CORD CLAMP φ15
104	280-5009	CORD CLAMP φ21
105	601-5963-150	BUSH 2.3t (150mm)
106	601-5415	GEAR 20
107	100-5052	BEARING 6007 ZZ (φ35)
108	310-5020-01	INSL SLIT TUBE ID φ7 ℓ=350
109	310-5020-02	INSL SLIT TUBE ID φ7 ℓ=450
201	008-0416	TMP PRF SCR TH M4×16
202	008-0516	TMP PRF SCR TH M5×16
203	000-0512-FS	M SCR PH W/FS M5×10
204	000-0410-FS	M SCR PH W/FS M4×10
205	000-0516-FS	M SCR PH W/FS M5×16
206	000-0412	M SCR PH M4×12
207	028-0006	SET SCR CH SPCL M4×10
208	030-0610	HEX BLT M6×10
209	060-0006	FLT WSHR M6
210	000-0408-FS	M SCR PH W/FS M4×8
301	SGB-3859-4	WIRE HARN FLASH A
	211-0085	CONN PLUG AMP 2P BROWN
	209-0023	CONN CLOSED END
302	SGB-3859-5	WIRE HARN FLATH B
	211-0085	CONN PLUG AMP 2P BROWN
	209-0023	CONN CLOSED END
303	SGB-3859-15	WIRE HARN SPEAKER
	211-0100	CONN PLUG AMP 4P RED
	280-0472	FASTON RCPT 110
304	SGB-3859-18	WIRE HARN EXT VR H/L
	211-0059	CONN PLUG AMP 3P WHITE
	200-0060	CONN CAP AMP 3P WHITE

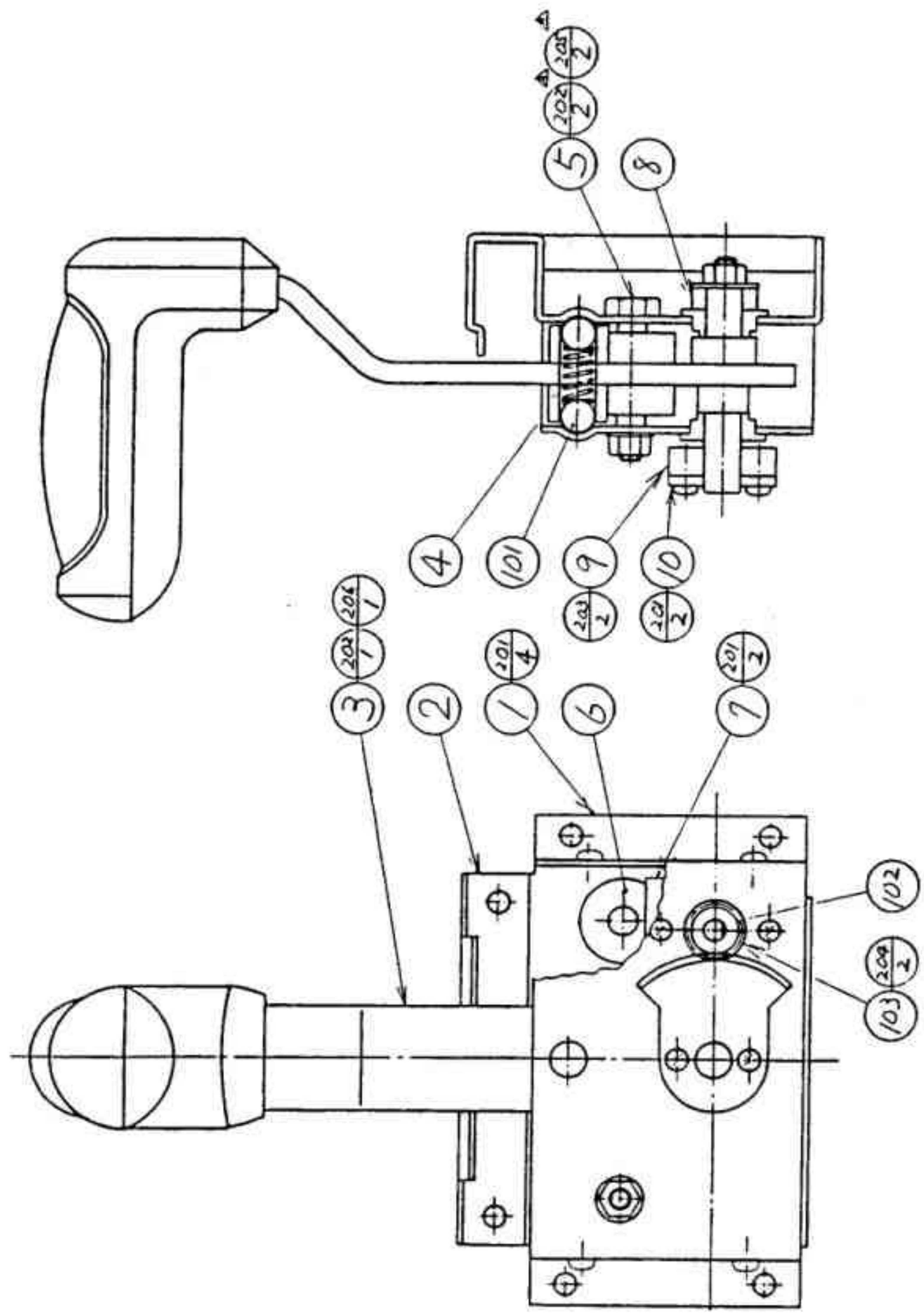
⑨ ASSY FRAME (JI-3000)

(D-3/3)

ITEM NO.	PART NO.	DESCRIPTION
305	SGB-3859-19	WIRE HARN VR L/R
	211-0097	CONN PLUG AMP 3P RED
306	SGB-3859-25	WIRE HARN SPEAKER
	211-0167	TERM LUG RND ID 5
	211-0041	CONN PIN AMP
	211-0042	CONN SOCKET AMP
	601-0460	PLASTIC TIE BELT 85mm

⑩ ASSY THROTTLE (JI-3100)

(D-1/2)

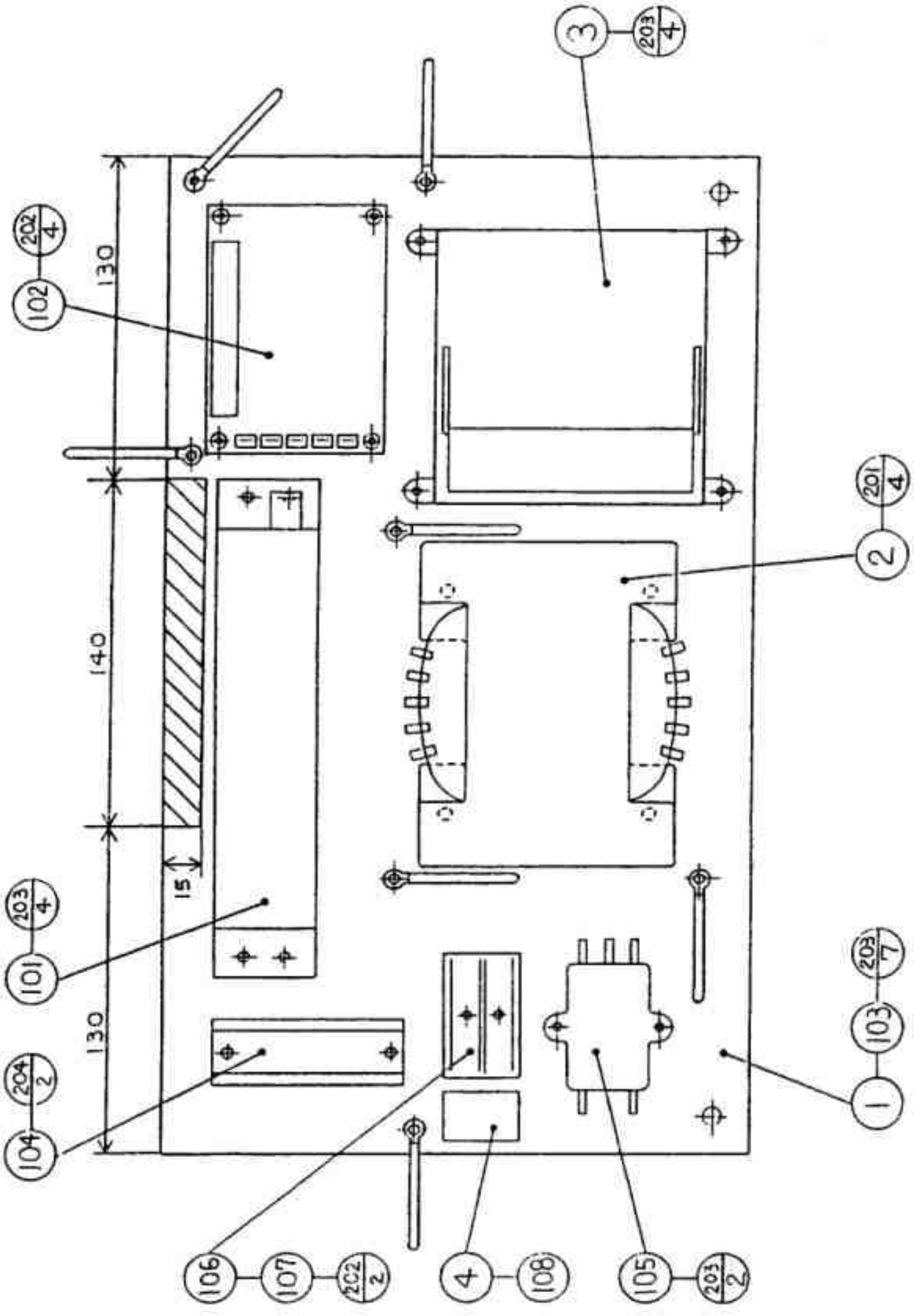


⑩ ASSY THROTTLE (JI-3100)

(D-2/2)

ITEM NO.	PART NO.	DESCRIPTION
1	JI-3101	THROTTLE BASE A
2	JI-3102	THROTTLE B
3	JI-3103	THROTTLE LEVER
4	JI-3107	COM SPRING
5	JI-3108	STOPPER SCRER
6	JI-3109	STOPPER
7	JI-3110	VOL. BRACKET
8	JI-3111	RUBBER RING
9	JI-3113	GUIDE RING
10	601-6005	ADJUST GEAR
101	101-5004	STEEL BALL ∅8.7312
102	220-5130	VOL CONT B-5K OHM
103	601-5415	GEAR 20
104	280-0425	CORD CLAMP ∅10
201	000-0408-FS	M SCR PH W/FS M4×8
202	054-0006	U NUT M6
203	028-0021	SET SCR PH SPECIAL
204	028-0014	SET SCR HEX SKT M4×4
205	060-0006	FLT WSHR M6
206	069-0002	FLT WSHR M6
301	SGB-3859-17	WIRE HARN THROTTLE
	211-0059	CONN PLUG AMP 3P WHITE
	211-0041	CONN PIN AMP
	601-0460	PLASTIC TIE BELT 85mm

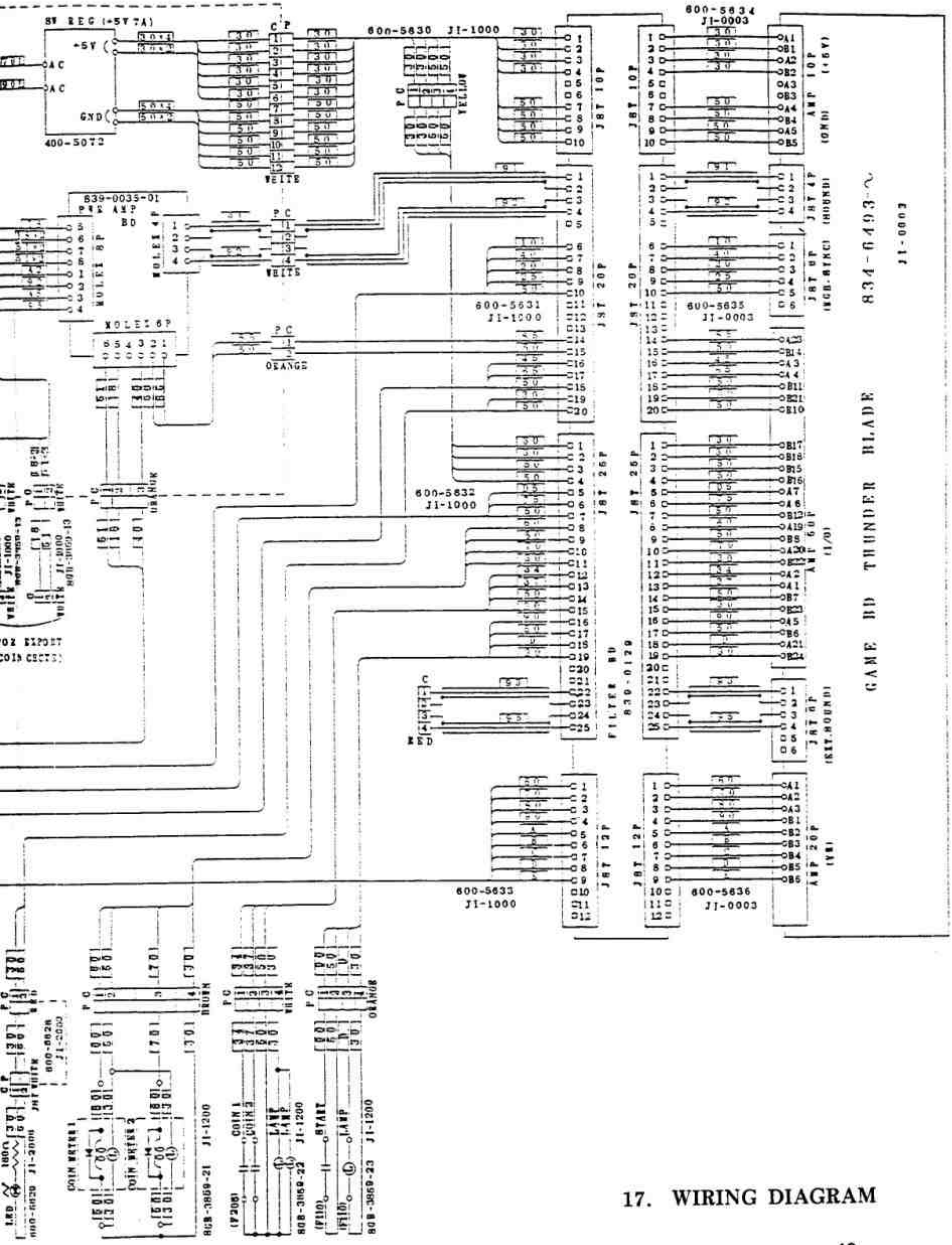
⑪ ASSY PWR SPLY (JI−4000) (D−1/2)



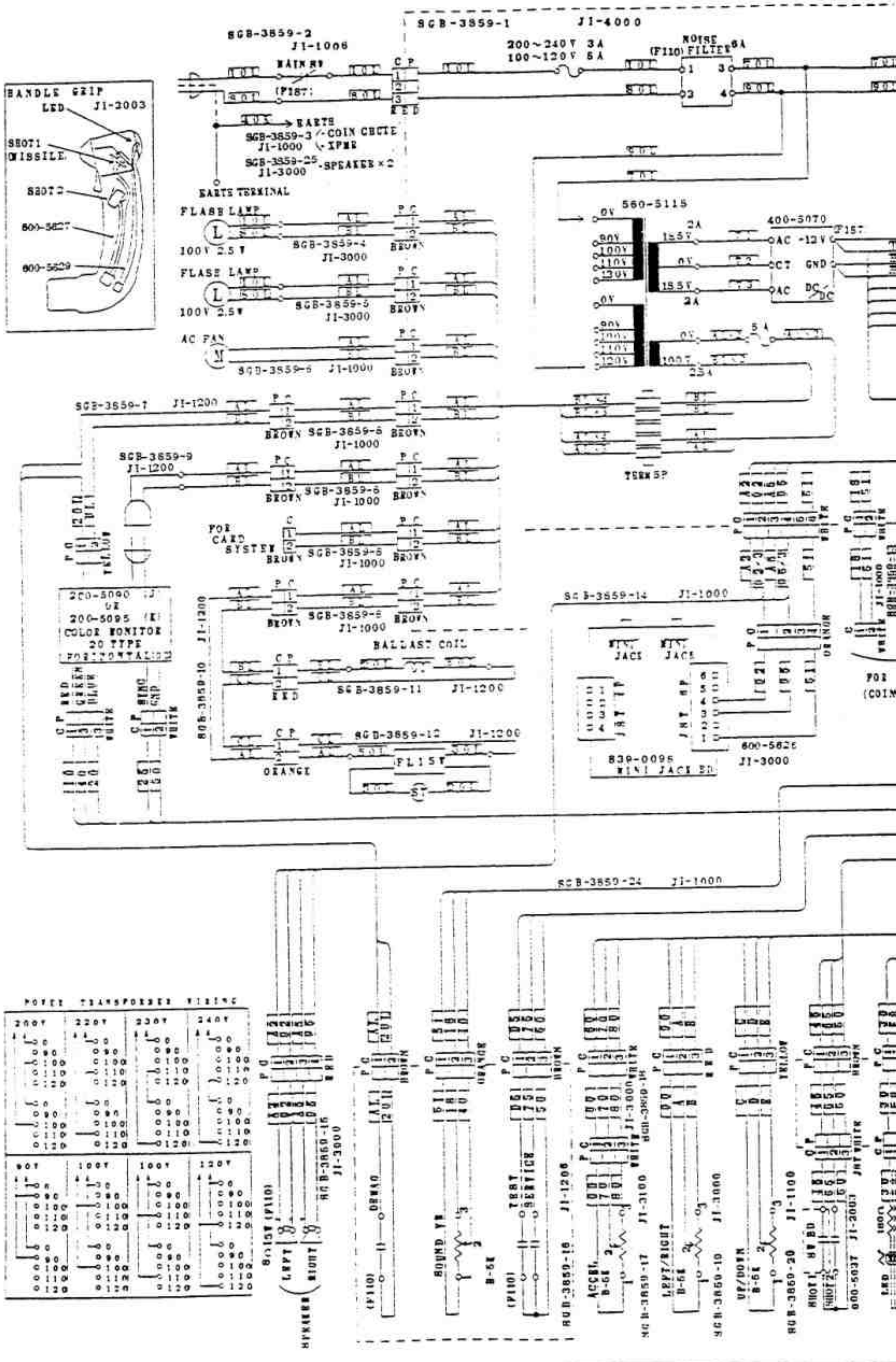
⑪ ASSY PWR SPLY (JI−4000)

(D−2/2)

ITEM NO.	PART NO.	DESCRIPTION
1	JI−4001	BASE
2	560−5118	PWR XFMR 90∼240V 100V 2.5A 18.5V 2A×2
3	839−0035−01	PWR AMP DC12V 10W
4	421−7151	STICKER FUSE INSTR
	421−6690−01	STICKER 120V
	TX−4005	COVER
101	400−5072	SW REGU AC90∼240V 5V 7A
102	400−5070	DC/DC CONVERTER 12V 5A
103	280−0419	HARNESS LUG
104	117−5131	TERMINAL PLATE 5P
105	270−5020	NOISE FILTER AC250V 6A
106	514−0064	FU HLDR 2P W/COVER
107	514−0034	FU 5A 6.4×30mm
108	601−0769	STAPLE MAX #3
201	000−0414−FS	M SCR PH W/FS M4×14
202	005−3120	W SCR RH 3.1×20
203	005−3510	W SCR RH 3.5×10
204	005−3516	W SCR RH 3.5×16
301	SGB−3859−1	WIRE HARN PWR SPLY
	211−0080	CONN CAP AMP 2P BROWN
	211−0044	CONN CAP AMP 2P WHITE
	211−0119	CONN CAP AMP 3P ORANGE
	211−0046	CONN CAP AMP 6P WHITE
	211−0047	CONN CAP AMP 12P WHITE
	211−0095	CONN PLUG AMP 2P ORANGE
	211−0097	CONN PLUG AMP 3P RED
	211−0073	CONN PLUG AMP 4P WHITE
	212−5076	CONN FEM 4P
	212−5034	CONN FEM 6P
	212−5067	CONN FEM 8P
	211−0041	CONN PIN AMP
	211−0042	CONN SOCKET AMP
	211−0005	CONN CRIMP LOCK
	211−0167	TERM LUG RND ID5
	280−0472	FASTON RCPT 110
	280−5015	FASTON RCPT 187
	601−0460	PLASTIC TIE BELT
	209−0023	CONN CLOSED END



17. WIRING DIAGRAM



SGB-3859-1
JI-4000
SGB-3859-2
JI-1006
200~240V 3A
100~120V 5A
NOISE FILTER 6A
(F110)
MAIN SW
(F187)
CP
RED
HANDLE GRIP
JI-2003
LED
SHOT1 MISSILE
SHOT2
600-5627
600-5629
EARTH
SGB-3859-3 COIN CHUTE
JI-1000 XPMR
SGB-3859-25 SPEAKER ×2
JI-3000
EARTH TERMINAL
FLASH LAMP
100V 2.5W
SGB-3859-4
JI-3000
BROWN
SGB-3859-5
AC FAN
SGB-3859-6
JI-1000
560-5115
400-5070
AC -12V
CT GND
AC DC/DC
0V
90V
100V
110V
120V
15.5V
2A
5A
100V
2.5A
SGB-3859-7
JI-1200
SGB-3859-8
TERM SP
SGB-3859-9
FOR CARD SYSTEM
200-5090 (J)
OR
200-5095 (K)
COLOR MONITOR
20 TYPE
HORIZONTAL
BALLAST COIL
SGB-3859-10
SGB-3859-11
SGB-3859-12
FL15T
ORANGE
SGB-3859-14
JI-1000
MINI JACK
839-0096
MINI JACK BD
600-5628
JI-3000
WHITE
FOR (COIN
SGB-3859-24
JI-1000
POWER TRANSFORMER WIRING
200V
220V
230V
240V
90V
100V
110V
120V
SPEAKER (LEFT RIGHT)
SGB-3859-15
JI-3000
DEMAG
SOUND VR
B-5K
TEST
SERVICE
SGB-3859-16
JI-1200
ACCEL
SGB-3859-17
JI-3100
LEFT/RIGHT
SGB-3859-19
JI-3000
UP/DOWN
SGB-3859-20
JI-1100
SHOT1 SW BD
600-5037
JI-2003
LED
YELLOW
BROWN

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